

JOURNAL

American Rhododendron Society

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Society's Purpose

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

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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

ARSStore: www.ARSStore.org

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

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

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Atlantic Rhododendron and Horticultural Society (ARHS) members with "the plantings" of 'Bellefontaine' and 'Fundy' on the Farm Pond Bank at the Atlantic Food and Horticulture Research and Development Centre in Kentville Nova Scotia, June 9, 2017. Drone Photo: Jamie Ellison.

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From the President

Ken Webb

Victoria, BC,
Canada



Hi to all ARS Members. I hope you are all doing well and staying healthy in these different times. Perhaps a centuries old quote from Charles Dickens could attempt to explain our present state of affairs? "It was the best of times; it was the worst of times." There are many hard things that we have to do today, but there are also many good things coming from this whole COVID-19 virus. I would like to touch on a few of them and remind us all how lucky we really are being gardeners and especially rhododendron gardeners

For those who have been quarantined and locked down in your own house, it must be extremely difficult. But, I hear many reports that our gardens are in better condition than they ever have been! Mostly, I guess, because there wasn't anywhere to go or any other thing to do. In our area, the whole spring and summer have been generally cooler than the last few years and our rhododendrons have been putting on huge new growth, with many buds forming for next spring already. It is so exciting to see that happening on a daily basis. For many years, we have been travelling to conventions during May and end up missing some of the best things in our garden, but not this year! With the necessary cancellation of our 75th Anniversary Convention, we were here every day to revel in the beauty of our own garden.

Sadly, not being able to travel has left us missing our many good friends that we have met around the world. Several couples that we know had been planning to attend the New Zealand and Tasmania, Australia, conferences planned for this fall. There we would have met friends that we have seen at previous conventions a number of times over the last few years, and get to see them in their own gardens. We had become especially close to many of these folks during the 2018 Convention in Europe. Perhaps, this is going to be the future, though, with much more limited travel to far-away places. On the positive side, travel cutbacks have reduced pollution around the world and made it a better place for us all.

Staying at home has also started a whole new outlook for many of us about the place where we live. Many people are appreciating their local environments more and are spending more resources on renovating and improving their homes to make nicer places to spend their time.

I would like to do a little catching up on some of the recent things happening in the ARS. Without this year's conventions to share our knowledge and feelings, some important things happening in our society may have been missed. We owe a huge thank you to Bill Meyers who has taken over the Eastern Vice-president post on short notice, and we also have a new Director for "Chapters at Large" in Jens Hansen, from Copenhagen, Denmark. These are good appointments, especially to have a Director from one of the "At Large" chapters to represent them, and Jens has also agreed to sit on the Executive Committee so that we have direct input to express concerns from those who live so far away. Sadly, June Walsh, has had to resign her position as Membership Chair for health reasons. We wish her a speedy recovery and will keep her in our thoughts and prayers. However, Steve McCormick is enthusiastically taking over this position. Finally, after a long term as Chairperson of the Endowment Fund Committee, Bill Mangels, is retiring. All the best, Bill, and thanks again for all you have done. This position is being taken over by Bob Ramik from Toronto, Ontario.

And just a short little bit about our first "Zoom" Board of Directors Meeting. Although we had been talking about it for years, we had never actually had one until we were forced to with the COVID-19 virus lockdown. After many practice sessions, we had a short spring Board meeting using the online Zoom platform. We connected people from all over the USA and Canada, and from Copenhagen, Denmark. We kept topics discussed to the absolute minimum, changing our regular agenda to get the mandatory things done first, in case everything went downhill from there. However, all went well and we are beginning to plan our next one for the fall.

Stay safe and healthy, both physically and mentally, and enjoy your rhododendrons every day!

From the Editor

Glen Jamieson

Parksville, BC
Canada



Well, I would guess that all chapters are experiencing the same challenges under COVID-19 that my chapter, Mount Arrowsmith on Vancouver Island, BC, Canada, is, namely the continued cancellation of all social activities into the fall—regular meetings, fall plant sales, Christmas social gathering, and so on. We are considering alternatives—virtual plant sales (plants are listed on the web, and when paid for via e-transfer, can be picked up at a designated time and location); ZOOM presentations, with talks hopefully recorded so they can be later watched by people unable to attend the live ZOOM presentation; and self-guided garden tours of selected gardens on specific dates that allow for social distancing. All of these are of course poorer alternatives to the interesting social gatherings experienced in the past, where we could mingle with friends, make new

friends, hear a presentation and have an enjoyable evening together.

The one thing that has not been impacted is of course your receipt of the quarterly JARS issues! Don Smart and I are working hard to try and make each issue as interesting as possible and we really appreciate all the support from writers that have submitted material or have allowed us to republish material from either newsletters or other journals. Needless to say, I welcome more material, so everyone please consider sending me material you think would be of interest to our society's members.

The Editorial Committee and I are also considering how best to help communicate news of a more "social" nature to members to help compensate for our current lack of chapter meetings. We don't see this as competition to JARS but rather something that would be a close companion, containing regional news and interesting things gleaned from chapter newsletters. JARS would continue to focus on more detailed gardening and scientific articles that have longer-term relevance. For long-term ARS members, it could mean something like the now defunct "Rhododendron and Azalea News," but modified to be digital and also include news about vireyas. You can see what the content of a 2008 copy of the "News" looked like at <https://www.rhododendron.org/news/plantsv11n2.htm>.

Sichuan 2019

John Roy

Ballachulish,
Argyll, Scotland

(Photos by au-
thor.)



After all the excitement of my travels and treks in Yunnan in 2017 (Roy 2018), I decided an easier trip would suit my advancing age. When good friend and fellow explorer Hartwig Schepker invited me to join six German and one Chinese botanists on a trip he was organising to Sichuan, I readily agreed. Sichuan's tourist industry has taken off in a huge way, with new roads and cable cars now ascending a lot of the best-known mountain areas.

So, on Wednesday, May 29, I boarded a KLM flight from Edinburgh to Schiphol, Amsterdam, to connect with a direct flight then to Chengdu, the provincial capital of Sichuan. Five of my German counterparts were also booked on the Chengdu

flight. However, my flight sat on the tarmac for nearly an hour before taking off, leaving me with a ridiculously short connection time of twenty minutes at Schiphol. As I ran between terminals, I thought that even if I managed to catch the flight, my luggage probably wouldn't, and so it was! Hartwig Schepker, Bodo Lammers, Frank Schnupper, Nils Koester, Robert Gliniers and I landed at Chengdu, but while the others collected their baggage from the carousel, mine was nowhere to be seen. We were met by our tour guide, "Dennis" from Lijiang, who helped me report the lost bag.

There was a free afternoon to do a bit of sightseeing. The news on the luggage was that it would probably arrive in Chengdu on the next flight in two days, by which time we would be elsewhere. Meanwhile, I only had what I was wearing. That evening, Ulrich Pietzarka and Liu Ming arrived from Shanghai. I had previously trekked before with Frank, Ulrich and Hartwig.

Next day we drove south, stopping at Leshan for a short boat trip to view the enormous Buddha carved into a sandstone cliff. Then, gaining altitude up the lower slopes of Emei Shan, and making a comfort stop at a small roadside pull-in, I saw coats for sale. We would be staying at 2400 m (7875 ft) for the next two nights, walking to the top of Emei Shan at 3000 m (9850 ft). Feeling that I would be vulnerable with no protective clothing, I bought the largest coat I could find and a bag to carry extras.

After booking into our accommodation at Lei Dong Ping, there was time for an exploration. Concrete steps had been built all the way from a cable car station at 1200 m (3940 ft) to the top. Immediately out of the village, we spotted rhododendrons *R. wiltonii*, *R. calophyllum*, *R. argyrophyllum* and *R. ambiguum* were easily found without leaving the trail, along with *Arisaema wilsonii* and *A. elephas*, with lots of variants between the two. One plant that caught my eye was the nettle relative *Meehania fargesii* with its pretty pink flowers.

The following day was June 1, and our intention was to walk from the top down the steps to the lower cable car station. We looked down into gulleys that were



Tourists visiting the giant Buddha on Emei Shan.



Arisaema elephas.

decorated with the pink to white flowers of *R. wiltonii* and the lovely patterned stems of *Arisaema lobatum* stood out, although their flowering was finished. Huge amounts of *A. wilsonii*, *A. elephas* and *R. pachytrichum* could be seen, and this rhododendron could easily be mistaken for *R. strigillosum* in the wild when out of flower. At Wannian Temple after a lunch stop, we continued down. The weather was fine and the views outstanding. Looking at the cliffs in the distance, we wondered if Ernest Wilson had found *R. williamsianum* somewhere out there, as it has only been found on Emei Shan and Wawu Shan. I was fortunate to spot another rarity, al-

though out of reach in a bamboo thicket, namely *Podophyllum delavayi* with its attractive mottled leaves and which is endemic to Emei Shan.

The descent was hard on the leg muscles and by the time we had descended 1000 m (3280 ft), we had had enough and boarded a cable car to go down to where we could board a bus back up to Lei Dong Ping. The good news was my luggage had arrived at the Chengdu airport and KLM was going to deliver it to where we had left our bus further down the mountain.

The next day we climbed to the top where an enormous golden statue has been built to honour Buddha. There were thousands of people up there, most having gone up by cable car. We scanned the abundant *Abies fabri* for the epiphytic *R. dendrocharis* but could not spot any. The views however were stunning. Taking the cable car back to Lei Dong Ping was the best option for our still aching leg muscles, and then a bus trip back to our own bus, where I was reunited with my luggage. I have great praise for both KLM and Dennis for co-ordinating this recovery!

From the top of Emei Shan we could clearly see the flat-topped Wawu Shan in the distance, and this was our next destination. This mountain, although slightly less than 3000 m (9840 ft), has a microclimate of rain and fog that ensures abundant moisture for its plants. However, when we arrived at the hotel, the locals said the cable car was now closed for maintenance for two days. The next day we found this was true and no amount of persuasion was going to allow us to walk. Disappointed, we would have to try to visit again later in the trip. Meanwhile we drove south to Mianning, which Steve Hootman had mentioned in an article about his travels in this area. There, he had accessed a mountain called Ling Shan, which had interesting plants.



Nomocharis pardanthina.

After a comfortable night in a hotel, we went back to the bus to drive to 2600 m (8530 ft). *Rhododendron augustinii* was plentiful and as we ascended to the Ling Shan "scenic area," we saw *R. floribundum* and *R. rex* subsp. *rex*. Some of the *R. rex* had a very beautiful chocolate brown indumentum, and the flora here was very rich and relatively undisturbed. Although there was a good trail and evidence of work to construct a cable car, we did not meet anyone. The beautiful red-spotted flower of a single *Nomocharis pardanthina* grew beside the river bed, and along the trail itself grew a tiny pink-flowered *Roscoea*. One of the *Rhododendron rex* had the parasitic plant *Taxillus delavayi* growing on it, with its red flowers dropping on to the ground. Gaining height, I spotted a *R. wardii* just off the trail, very often when you go "off piste" to



Rhododendron wiltonii clinging to gulleys.

view something, another plant will catch your eye, and so there was another yellow-flowered rhododendron, but a dwarf and further into the thicket. Fighting off various stems and branches, I came to a straggly small shrub with a single truss of two yellow flowers. It was a bit of a puzzle until Hartwig came up with the name of the recently described *R. mianningense*, which was growing among the lovely *Pleione bulbocodioides*.

Rhododendrons from subsection *Taliensia* were to loom large on this trip and some taxonomic confusion started on this mountain. Abundant was a rhododendron that looked a lot like *R. bureavii*, but with a discontinuous spotted indumentum. We would see a lot more of these confusing plants later in the trip.

We came off the mountain in good time, so we were able to drive to Xichang, further south. From there we could easily access Luo-ji Shan, a mountain well-documented from previous expeditions. Here the cable car took us to 3500 m (11,480 ft), and stepping out of the top station, I spotted a very dark *Arisaema elephas*. This species was abundant, with some very nice foliage and spathe variations. The dark purple spadix appendage curves down and then up, reminding one of an elephant's trunk. Concrete steps and wooden walkways had been built to create circular walks from the cable car, and we intended to walk as far as possible. Initially there were lots of people arriving, with many giggling girls who wanted to have their photos taken with these tall Europeans! Considering the altitude, many were not suitably dressed and they did not venture far, so the more we walked the quieter it became.

Rhododendrons were represented by the fading yellow flowers of *R. lacteum*, the shell pink of *R. souliei*, and the splendid darker pink of *R. heliolepis*. Across a rocky stream, I could see dark blue-purple flowers on a dwarf rhododendron. Growing right beside a lake was straggly, sickly-looking *R. roxieanum* var. *cucullatum*. Many branches had died but there were sporadic areas of new growth. Two similar *Taliensia* subsection rhododendrons dominated the forest now, although one with flat leaves and rough tomentose stems had finished flowering. The other with convex leaves, a thicker woollier indumentum and smooth green stems was still in flower, and Frank sorted these into *R. sphaeroblastum* for the first and *R. clementinae* for the second. We were impressed and he became known as Frank "Kingdon" Schnupper!



Hartwig Schepker and Frank "Kingdon" Schnupper admire the foliage of *Rhododendron bureavi*.



Rhododendron amunsdenianum.

A larger group of the dwarf rhododendron with the deep blue-purple flowers grew on boulders beside a lake, and so we could get a closer look and identify it as *R. amunsdenianum*, a species only recently discovered. This was to be voted plant of the trip later on. Then we saw that *Taliensia* subsection rhododendron with the spotted indumentum again, and lots of it. As we made our way back down the mountain there was only one visible specimen of what I would call *R. bureavii* with a lovely reddish indumentum. There was much discussion as to what the unknown rhododendron was, but no conclusions were reached.

From the hotel in Xichang, the next day we went back up the cable car to walk down Luo-ji Shan to where the mountain bus dropped us. It started foggy but gradually cleared, and lots of the same plants greeted us, but as we descended, we came to more *R. rex* with the choc-



Rhododendron prattii.

olate brown indumentum, some *R. decorum* with scented white flowers and *R. floribundum*. *Arisaema lobatum* also grew at this lower altitude. The descent, on wooden and concrete steps, was also hard on the leg muscles, which were still aching after descending Emei Shan.

A long bus journey awaited us on the following day as we drove north to Moxi. This is a pleasant town with an old sector "tourist" area. It has history in Mao Zedong's long march, as he requisitioned as a base camp the Catholic Church there that was built by French missionaries. There is a museum there that describes the long march and the privations suffered by those involved, and we stayed in the Long March International Hotel.

We set off to explore the east flank of Gongga Shan the next day. True to form, this also involved both a shuttle bus and cable car. The cable car took us over the remains of a glacier, which was in retreat like so many worldwide. It was a cold drizzly day and when we exited the cable car visibility was very poor. We found *R. prattii*, usually with a green margin around the underside leaf indumentum, but others that looked very similar but had indumentum over the whole underside. We walked round on wooden boardwalks that prevented closer inspection of many plants, but *R. watsonii* was easily recognised with its bright green leaves and short very-winged petioles and we saw some *R. ambiguum* with its pretty pink-tinged flowers.

We descended on the cable car and then walked some of the way down rather than take the bus. In the forest we soon found great *Arisaema dilatatum*, recognisable from *A. elephas* by its verrucose petioles and green/yellow spadix appendages, swollen and reaching out. Some under the forest canopy were all of 80 cm (31 in) wide across the foliage. *R. moupinense* was spotted growing in the fork of a tree, long since finished flowering. As we walked down the bank of a fast-moving river, we spotted *R. concinnum* Pseudoyanthinum Group, with its beautiful dark purple flowers, which contrasted nicely with the light pink of *R. orbiculare*.

Leaving Moxi, we had a long drive north over a high pass to Kangding. Stopping briefly, we got a taster of the rich flora to be investigated the following day. Retracing our steps back up the Ya Jia Jeng, we stopped the bus at a small lake bedecked with prayer flags. Round the lake grew many primulas: *P. sikkimensis* with its yellow flowers mixed with the purple flowers of *P. secundiflora*. *R. phaeochrysum* grew with patches of subsection *Lapponica* rhododendrons: *R. nitidulum*, *R. intricatum*, and *R. primuliflorum* were in the mix. More primulas were identified, with the bright orange flowers of *P. cockburniana* combining with the bright pink of *P. blinnii* and the tiny *P. fasciculata*.

The flora really was good on this pass, the road going to 4000 m (13,125 ft). Tall yellow flowers of *Meconopsis integrifolia*



Arisaema dilatatum.



Primula cockburniana.



Primula blinnii.



Meconopsis integrifolia.



Rhododendron rufescens.

folia and tall yellow bracts of *Rheum alexandrae* contrasted with the beautiful purple slipper orchid *Cypripedium tibeticum*. Pink fragrant flowers occurred on *Daphne tangutica*, which had a dwarf *Euphorbia* mixed up in its roots. Our bus took us to the top of the pass where it was misty and drizzly, but there was time for some more botanising.



Rhododendron websterianum.

Here, *Arisaema elephas* was tiny compared to those lower down. Hartwig had read a report that *Rhododendron rufescens*, a rare and choice member of section *Pogonanthum*, had been found here. Exploring the banks of the river, he found it growing among boulders, easily identifiable by its bright white flowers and its very dark reddish undersides to the leaves.

There was another night in Kangding, and then a bus trip north to Muge Tso. Once more, a shuttle bus took us to a busy tourist attraction. A beautiful lake extended into the distance, but we walked the other way, immediately into meadows of *Primula sikkimensis* and *P. secundiflora*. Another member of subsection *Lapponica* was found, *R. websterianum*, a small upright shrub with light blue saucer-shaped flowers, red calices and grey leaves. Hartwig gave me a lesson in identification to distinguish between *R. nivale* and *R. telmateum*. A tall, yellow flowered primula was identified as *P. orbicularis* while *Incarvillea compacta* drew attention with its pink flowers at ground level. Lovely pink *R. primuliflorum* grew among boulders with *Iris*, *Lloydia*, *Fritillaria* and *Cypripedium*. We had to drag ourselves away, so that we would have time to explore downstream from the lake.

The cliff faces at the edge of the river were painted with Buddhist images, and on the tops of the cliffs and boulders grew *R. phaeochrysum*. The lovely light-pink flowers of *R. bureavioides* contrasted with the darker pink of *R. concinnum*. Two terrestrial orchids were spotted, a *Cephalanthera* with a spike of white flowers and an *Oreorchis* with its dark red flowers. Lower down grew *Podophyllum hexandrum* with its lovely marbled leaves.

Leaving Kangding the next morning, we had a good view of Gongga Shan. We then headed west over Zheduo Shan to Tagong. It was a busy road and a relief to stop and botanise. *Primula monroi* had bunches of lovely scented pink flowers alongside a wonderful blue *Corydalis*. Reaching the top, our bus pulled into a very popular tourist spot. The view was spectacular and while the others joined the throngs of people making their way up stone steps to a chorten, I went in the other direction for a quieter walk. *Meconopsis integrifolia* grew prolifically up there, especially where the ground had been disturbed which helped in seed germination, as did the smaller, dark blue *M. henrici*. Alpine flora was superb at this altitude of 4300 m (14,110 ft). Two beautiful *Pedicularis* caught my eye: *P. variegata* had yellow and pink flowers while *P. siphonantha* had bright pink flowers, while the usual subsection *Lapponica* rhododendrons carpeted the ground.

After another comfortable hotel stay, we visited the local Lhagang Monastery and did some sightseeing. Then all aboard the bus again to head further north and to a town called Jia Ju. Our journey took us past the Moshi Park Stone Forest, a curious area where outcrops of a bedrock called Mylonite occurred. This is a fine-grained, compact, soft grey rock, high in minerals, that movement of the Earth's crust has metamorphosed from its original crystallized structure. Meadows of *Stellera chamaejasme* obviously enjoyed this habitat! Jia Ju and nearby Danba is a very historical area with strong ties to ethnic Tibet. Our hotel was on a steep hillside above the town, with great views. In the distance, we could see tall stone towers, some up to 1000 years old, that historically had been used as fortresses.

Unfortunately, many of us now started to feel ill with gastro-intestinal problems, myself included. The next morning was spent sight-seeing, so those of us who did not feel well could stay behind. We then took what seemed like a long,



Primula secundiflora.

rough bus ride to Rilong to the east, with the others now going down with the intestinal issues. Sigunian Shan was the destination for the following day, and ascending the Shuangqioa Valley, a shuttle bus took us to 3800 m (12,470 ft). Still feeling unwell, many of us did not have the energy to go far, but immediately we spotted *Podophyllum hexandrum* emerging with its deep pink flowers. Along with *Primula monroi* was growing another pink-flowered primula, but with deeply cut leaves, identified as *P. palmata*. Other plants we had already encountered included *Cypripedium tibeticum*, *Primula sikkimensis* and *Rhododendron phaeochrysum*. A yellow flowering poppy with more open flowers could have been *Meconopsis pseudointegrifolia*. A *Fritillaria cirrhosa* with its purple patterning in the flower was stunning. *Primula chionantha* subsp. *sinopurpurea* and *Omphalogramma vinciflorum* added purple and blue to the spectrum. As we waited for the bus back down, some of us still felt poorly.



Primula palmata.

Saturday, June 15, 2019, was my 66th birthday, not the first I had spent on trek! After some medication, we were all feeling better, and Dennis described us as being back to “eight tigers.” ready for trekking. This was just as well because this involved an overnight stay in the Changpingquo Valley beneath the Sigunian Shan. Our camping equipment and overnight luggage were taken on by ponies, while we boarded shuttle buses. The now-familiar boardwalk guided us further up the mountain alongside a river and lake. The jagged peaks beckoned us on, but after a lunch stop, the boardwalk petered out and we were on a rough trail with almost no-one but ourselves.

Plants were much the same as what we had seen on previous treks. Meadows of *Primula sikkimensis*, *P. monroi* and *P. palmata*, which seemed to favour a slightly drier spot. Blue flower spikes of *P. muscarioides* were opening but a trifoliolate *Arisaema* with green striped spathe and short fine spadix appendage remains unidentified. Just below our camp, a tiny beautiful *Lilium lophophorum* grew on a log, with its yellow petals still joined at the tips.

That evening, the heavens opened up with thunder rattling around the valley. Our small leaky tents looked rather unattractive and some decided to pay to sleep in the wooden hostel at the site. The river level had risen considerably overnight, and many primulas were now underwater. A short walk upstream revealed *Rhododendron trichostomum*, but if Hartwig had not spotted it, I would have missed it. Retracing our steps back down the valley to the shuttle bus, we arrived back for another night in Rilong.

Balang Shan beckoned us the next day with a drive east to Wolong. There is now a tunnel through the top of the mountain, but the old road over the pass still exists and is relatively quiet. Balang Shan has been well documented botanically as a very rich area. Our first joy was the drooping red flowers of *Meconopsis punicea*. Confusion persisted around identifying a lot of the primulas that resembled *P. chionantha* with some that had one-sided heads of flowers in a beautiful blue. On our return home and



Pedicularis variegata.



Omphalogramma vinciflorum.



Lilium lophophorum.

consulting John Richards's book, he lumped a few into *P. chionantha* but others even confused the experts. Their identification could be the subject of a whole new article!

Another unknown for me was a primula that resembled *P. monroi* but with some farina and remarkably thick leaves with striking red petioles, which was possibly *P. gemmifera*. Continuing up the pass, rhododendrons in section *Pogonanthum* were in evidence in the form of a nice pink-flowered *R. primuliflorum*, and near the



Meconopsis punicea.



Rhododendron sargentianum.

top, yellow-flowered *R. sargentianum*. The blue nodding flowers of *Primula amethystina* were dotted everywhere, along with a beautiful clump of pink-flowered *P. dryadifolia*. We went over the top of the pass and down the east side, and after a lunch stop, we started a search for *Rhododendron balangense*, a member of subsection *Taliensia* that is endemic to this mountain. We started up the steep stony side of a stream, but the terrain was too rough for me and I retreated to the road. Others persevered, and Frank "Kingdon" Schnupper located a fine specimen of this species. Meanwhile, as I walked back to the bus, I spotted some of its seedlings growing at the edge of an old landslide, so it is reproducing in the wild but it is rightly in the red list. During a short stop on our journey down to Wolong, we found *R. galactinum*, but its flowering had finished.

Wolong was on our original itinerary, but we also wanted to go up Wawu Shan, but we did not have time for both. Wawu won the day but our driver had to make a security check-in Chengdu before, so it made a long day on the bus.

The next day we had better luck with shuttle buses and cable cars running to the top of the mountain. In the bottom station, some enlarged pictures of rhododendrons on Wawu Shan were on display,



Plant explorers E. H. Wilson and Frank "Kingdon" Schnupper on Wawu Shan.

and notably, *R. williamsianum* was on one of the boards. The top of the mountain was busy with tourists and the weather was damp and drizzly. Looking up into *Abies fabri* (Faber's fir) we could see *R. dendrocharis* growing in moss on the trunks, but these had long since finished flowering. Most rhododendron flowers had passed their best but we could see a few on *R. wiltonii*, *R. ambiguum* and *R. orbiculare*, but there was no sign of *R. williamsianum*. A big statue of Ernest Wilson dominated one area.

On our way back down the mountain. Ming found out who had taken the photo of *R. williamsianum*, and was able to set up a meeting. So, on our drive back to Chengdu, we visited a publishing office and met the photographer, Lijun Luo, the Marketing Department Director of Wawushan Investment Co Ltd. The picture had been taken in 2000 when the mountain was closed to tourists, and he had been able to access the cliffs around the summit, one of the few times this rare plant has been seen in the wild.

In conclusion, this was a most enjoyable trip with so many good plants seen, mostly without the severe effort of walking long distances over rough terrain with the rain trickling down your back. However, the downside was the noise and throngs of people at some of the sites!

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John Roy is the Editor of the Scottish Rhododendron Society, a Chapter of the ARS

A Trio of Beautiful Foliage Rhododendrons: 'Whid Bee', 'Cherries and Merlot' and 'Wine and Roses'

Maria Stewart

Sandy, OR



Through the years, you have probably admired 'Rosevallon' for its leaves with red undersides. Joining 'Rosevallon' are three more special rhododendrons with those colorful leaves. Warren Berg hybridized 'Whid Bee' to further add to the interest in fine foliage hybrids. We have Frank Fujioka to thank for 'Cherries and Merlot' and Ken Cox created 'Wine and Roses' for us to enjoy.

'Whid Bee', cross 'Rosevallon' X 'Rubicon', grows wider than tall and its handsome leaves are dark green with red undersides. When the buds are swelling before blooming, the red bud scales predict the beautiful red trusses that are soon to appear. Protect 'Whid Bee' from severe cold and the hot afternoon sun.

Frank Fujioka carried on the quest for fine foliage rhododendrons by creating 'Cherries and Merlot'. Its parentage is ('Pretty Baby' X *R. pachysanthum*) x 'Whid Bee'. Its light red flowers go nicely with leaves of dark green on top and reddish purple on their undersides. It grows to three feet (0.9 m) in ten years. Some light shade is desirable.

The third member of this trio is 'Wine and Roses' (a 'Rosevallon' hybrid) and Ken Cox hybridized it. The glowing pink trusses are set against dark green leaves. Furthermore, the undersides of the leaves are reddish purple! It grows to about three feet (0.9 m) in ten years and blooms in April. Plant it out of the hot afternoon sun.

Maria Stewart is a member and past president of the Portland, OR, Chapter. She and her husband Mike also owned and operated the Dover Nursery in Sandy, OR.



'Whid Bee'. Photo: Mike Stewart.



'Wine and Roses'. Photo: diary.caerhays.co.uk.



'Cherries and Merlot'. Photo: Mike Stewart.

Rhodoladies, with Emphasis on North Americans

Per M. Jørgensen
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Preface

Some time ago (Jørgensen 2019) I was challenged to go through the rhododendron collection at the Norwegian Arboretum at Milde near Bergen to locate those rhododendrons named after women. This also led me to search further for women breeders and collectors. Recently, I presented an English version of that article (Jørgensen 2020) which of course focused on British ladies. On request from the editor of the *Journal American Rhododendron Society*, I decided also to make a version focusing on North American ladies, which proved rather difficult as I do not have such close contact with American horticulture. I hope, however, that I have been able to locate the most important American rhodoladies, and that someone closer to home might be able to fill in any potential gaps that might exist.

Introduction

Relatively few women have contributed directly to the knowledge of rhododendrons and their breeding. Immediately when faced with this challenge, only two came to my mind, two British pioneers, one of which I had known personally: Roza Stevenson (later Harrison, 1899-1967, (Fig. 1) and Jean Kingdon-Ward (later Rasmussen, 1921-2011, (Fig. 2). They were very different personalities, representing two quite different aspects of this theme. I know that they knew and admired each other, and I will take them as examples and the starting point of these different, but related themes within the *Rhododendron* history.

Women collectors

Jean represents the group of brave pioneers. As my friend Ole J. Larsen (2015, 2019) has recently presented a biographic note about this unique personality, I'll only briefly present her here. Her father, Sir Albert Sotain Romer Macklin, was High-judge in Bombay, India, where Jean was born in 1921. She grew up partly there and partly in England (boarding school). She told me that life as the daughter of the High-judge in Bombay felt like growing up in a golden cage. It came as a relief for this adventurous girl when the explorer Frank Kingdon-Ward (1885-1958) sought her father's assistance in the planning of a plant collecting expedition to the Himalayas, and she was allowed to assist him, a role that suited her and later became her profession. Gradually they developed feelings for each other in spite of the large age difference (about 40 years!), and as she said herself "my father was furious." Nevertheless, they got married, and then they went on a honeymoon expedition into the Himalayas. This was the start of numerous expeditions in the region,

until Frank's last living year (1958). She told me, without any regret in her voice, that they never had a home of their own. The periods in Britain were only necessary to secure funding for the next expedition, giving lectures, etc. They stayed with friends /supporters, or in hotels. Jean eventually wrote a book about their adventures (1952). She participated in the discovery of many interesting species, but unfortunately no *Rhododendron* is named after her. There is, however, a remarkable lily called *Lilium macklinae* (Fig. 3), carrying her maiden family-name.

She is, however, neither the first nor the only woman who has taken on the rugged Asiatic mountains. One of the first, if not the first, was the Russian ethnologist Alexandra Potanina (1843-1893, (Fig. 4) who followed her husband Gregor N. Potanin (1835-1920) on his botanical expeditions in the region. Her travel account was published posthumously in 1895, after she perished during one of the expeditions. She is remembered in the name of the spectacular rhubarb, *Rheum alexandrae*.

Jean has been followed by quite a number of ladies in modern times. Foremost in our connection is the British Patricia Cox (1933-2020, Fig. 5), the wife of the well-known Rhododendron expert Peter Cox, the manager of Glendoick Gardens, which has become a center for species collected in nature, many of which are being used in breeding. One of the more recent cultivars, a *R. dendrocharis* hybrid, is named after



Fig. 1. Roza Stevenson as depicted in Eric Saville's obituary of her.



Fig. 2. Jean Rasmussen (formerly Kingdon-Ward) in her Norwegian garden at 'Lilleknuppen', Sunnmøre. Photo: Roger Engevik.



Fig. 3. *Lilium macklinae* at Glendoick gardens. Photo: K. Cox.



Fig. 4. Alexandra Potanina. From Wikipedia Public Domain.

her, 'Tricia Cox' (Fig. 6). Among several others, one American, stands out, namely June Sinclair (1928-, Fig. 7) who has trekked in the Himalayas five times. Her friend Warren Berg (1923-2006) named one of his *R. keiskei* hybrids, 'June Bee' (Fig. 8), after this diligent gardener, beekeeper and rhododendron enthusiast.

Species Named After Ladies.

Since species are mostly named after persons who took part in their discovery, and because very few women took part in these adventures, it comes as no surprise that few women are remembered in the species epithets. Altogether about a dozen lady names are



Fig. 5. Patricia Cox (to the right) during a tea-break at an expedition to Arunachal Pradesh in 1956 with her husband Peter (above). Photographer unknown.



Fig. 6. 'Tricia Cox', a new cultivar. Photo: K. Cox.



Fig. 7. June Sinclair (with hat, to the right) and Romy Millais in the Himalayas in 1990. Photographer unknown.



Fig. 8. 'June Bee' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

this method several times. However, in one case, that of *Rhododendron championae* (Fig. 10), the lady in question might have accompanied her plant-collecting husband when he found this species. This lady is Frances Muriel Champion (b. Carnegie in 1821). She is recorded as having assisted her husband, Captain George Champion (1815-1854), in the field in Southeast China when he was stationed there (he was later killed in the battle of Crimea.) She is thus the first named women to do fieldwork in these regions (though these mountains are less dramatic and lower than in those of the Himalayas).

None of these two species has been of great importance in horticulture, since they are not easy to grow in cultivation, being quite tender and better grown in temperate areas in a greenhouse. A more important, recent case is that of *Rhododendron kesangiae* (Fig. 11), a magnificent Bhutanese species named after the Queen Mother, Kesang of Bhutan at that time, a country having *Rhododendron* as its national flower.

I have only been able to find three species named after American ladies, all related to material collected by "China Wilson", the English-born Ernest H. Wilson (1876-1930) who worked for the Arnold Arboretum near Boston. The first one, *Rhododendron wilsonae* (Fig. 12), is named after his wife, Helen Wilson, while they still lived in England. This is a plant in the *Chionoastrum* section, just like *R. championae*, but while harder than that species, less spectacular in flower. It belongs in a difficult, poorly understood species complex and is perhaps best regarded as a form of *R. latoucheae* (Cox and Cox 1997).



Fig. 9. *Rhododendron farrerae* as presented in the original publication.

registered. The first one is from 1831 when Sweet named a species in the *Tsutsui* subgenus ("Japanese azaleas") as *Rhododendron farrerae* (Fig. 9), a name suggested by George Tate who knew the owner, Mrs. Farrer. She had been presented this specimen in 1839 by her husband, Captain William Farrer of the ship *Orwell* in service of the East India Company, on his return from Hong Kong. This started a trend to name species after the wives of collectors or helpers. Mrs. Farrer on her part never took part in securing this specimen, but managed to keep it alive long enough that ultimately it was noticed by a botanist. This started a trend of honoring women who somehow supported those men who were involved in the actual discovery (Jørgensen 2020). Joseph D. Hooker (Hook. fl. 1817-1911) used



Fig. 10. *R. championae*. Photo: K. Cox.

This is also named after a lady, an acquaintance of the French botanist Adrien Franchet (1834-1900) who had the (bad) habit of naming species after his lady friends. The most infamous is *R. annae* (Fig. 13), where the family name remains a secret.

The two remaining are both members of subsection *Triflora* and are described by the dendrologist at the Arnold Arboretum, Alfred Rehder (1863-1949), who named them after two Bostonian ladies whom he probably admired. The first one, *R. amesiae* (Fig. 14), is probably just a hairy form of *R. concinnum* (Cox and Cox 1997). It is most likely named after Mary S. Ames, wife of the botany professor Oakes



Fig. 11. *R. kesangiae* at Glendoick Gardens. Photo: K. Cox.



Fig. 12. *R. wilsonae* in van Veen's greenhouse. Photo: K. Cox.



Fig.13. *R. annae* at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

Ames (1874-1950) at Harvard University. The last one, a hardy, distinctive species, *R. searsiae* (Fig. 15), is named after Sarah C. Sears (1958-1935,) (Fig.16), a central cultural entrepreneur in Boston at that time. Her profession was that of drawing and photography. I am, however, not aware that she portrayed any rhododendrons. She was, however, born in Cambridge, Mass. where the Arboretum is situated, and was in other words a "local girl."

Female Rhododendron Hybridizers

There are surprisingly few women who have taken part in rhododendron hybridizing, though some may be hidden as supporters of their husbands, the owners of nurseries or estates. This also is the case of the lady I first came to think of in this connection, Roza Stevenson (Fig. 1). She was born in England where her Russian born father (of German descent), Ernst E. F. Heesch, was professor of music, a profession also had by her maternal grandfather, Tomasso Radcliff. She accordingly grew up in an artistic atmosphere and was attracted to ballet dancing. She had already started a career in this field when she met and fell in love with the botanist John B. Stevenson (1882-1951). They married in 1917, and her husband bought the later famous Tower Court (Fig. 17) where he established a test garden for rhododendrons, initially to study the taxonomy and variation of the many confusing species which had been recently described. His goal was to produce a monograph where the species were accurately described. This book eventually appeared (1930). Surprisingly, Roza proved to have "green fingers" and took an active part in the establishment of this major effort, where she gradually became an authority in her own right. She also had a charming personality which appealed to the dominating, noblemen in charge of the Rhododendron Society in England which was formed in 1915. This became the Rhododendron Association from 1929-39, and in 1945, became the Rhododendrons, Camellias and Magnolias Group of the Royal Horticultural Society. It has been said that she was the only women they tolerated (which is surely an exaggeration!). As the Tower Court collection (Fig. 17) grew, they started to improve species for the garden, a task that suited the artistic Roza. They created and exhibited several new cultivars, always exhibited in his name, but not necessarily of his making. He named several in her honor, though the now unde-



Fig. 14. *R. amesiae* at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

servedly forgotten 'Tessa', an early *R. x praecox* hybrid (1935), carries her nick name (the clone 'Tessa Roza' is also named after her Christian name). The greatest success, the large and late-flowering 'Polar Bear' (Fig. 18), was attributed to her crossing activities by Eric Saville in his obituary of her. Even if this claim is difficult to prove, there is no doubt that she played a major role in the breeding program with her love for practical work and creation of beautiful cultivars. Actually, after Stevenson's sudden death in 1951, she managed to save the collection by courageous actions, with much of it now in the Valley Garden at Windsor after the royals became involved in the rescue action. Roza Stevenson remarried General Eric Harrison and moved to Cornwall, where she turned to dog breeding, though still active and treasured as an advisor on the British rhododendron scene until her last days.

Roza Stevenson was certainly not the first woman in the history of rhododendron breeding. The grand old lady in this history is clearly Clara Mangles (1846-1931), the last living sister of the pioneer James Mangles (1832-1884) who was called "the High priest of rhododendron breeding." He was keen on producing hardy, large-flowered *R. decorum* hybrids, one of the most famous being 'Beauty of Littleworth' (Fig. 19), named after the estate where he lived with his



Fig. 15. *R. searsiae* at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 16. Sarah C. Sears painted by J. S. Sargent.

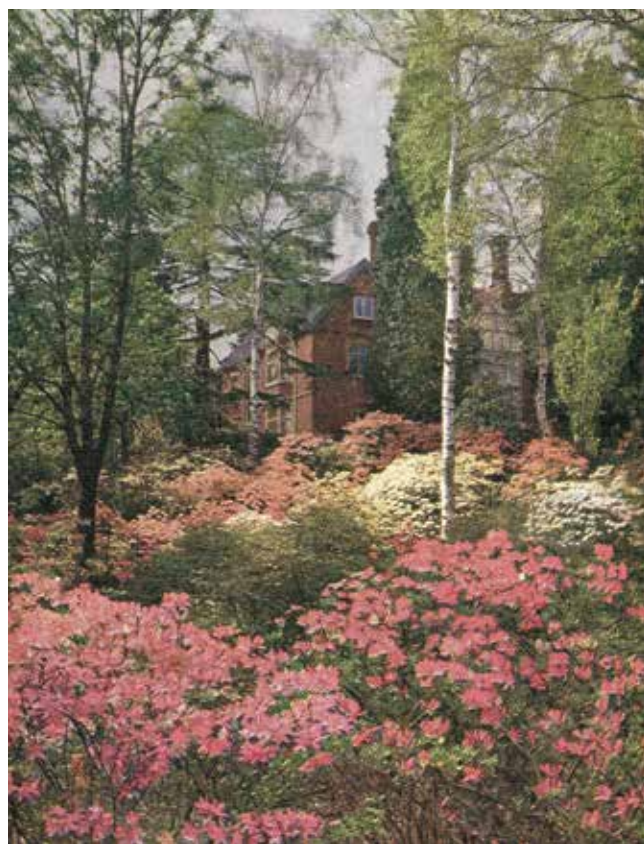


Fig. 17. Tower Court, the azalea garden in full flower. From RHS.

family. It was registered by Clara as late as 1904 when exhibited, and it may be, according to Lady Pamela Gordon, a later owner and caretaker of Littleworth (the remaining part was renamed Heatherset) a result of a crossing Clara did. Anyway, she was given an honorary



Fig. 18. 'Polar Bear' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 19. 'Beauty of Littleworth' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

membership in the Rhododendron Society in England in 1921/22. Unfortunately, the society has been unable to provide me with a photo of her, nor has anyone else.

The American scene looks rather like the British, though it is more varied and also contains individual women who worked independently of husbands or relatives. For long I believed that Anna Lem (1895-1995) (Fig. 20) was the first instance of an American women breeding rhododendrons. Several cultivars carry the prefix "Anna's," e.g., 'Anna's Riplet'. However, I learnt from Gwen Bell that these were her selections of plants from crosses made by her husband, the famous breeder Halfdan Lem (see Jørgensen 2017), those she regarded as better selections than that of Halfdan's. These she kept in a separate garden of her own. Nevertheless, she undoubtedly played an important role in her husband's activities. He named one of his favorite cultivars 'Anna' (Fig. 21) after her, an early example of a cultivar only carrying the Christian name of a women without the family name. This was one of five seedlings resulting from a cross originally made by Lord Swaythling's gardener, Fred J. Rose, at the English estate of Town Hill near Southampton. It is an ancestor of Lem's famous "Walloper series."

There is, however, another early women breeder who used his material to make new cultivars, the Canadian Mary Greig (1897-1990) (Fig. 22). She has said that she once bought an incorrectly named plant from "a mad Swede in Seattle" (Walker 2015). This was most likely from the excentric Halfdan Lem who by then had a nursery in Seattle (he was, however, Norwegian by birth!). This plant she later used in her breeding experiments. Mary Greig is an American equivalent of Roza Stevenson, having been born in England, but later emigrating to Canada with her parents in 1911 (Walker 2015). She eventually settled on Vancouver Island, British Columbia, where she married Ted. They established a nursery in Cowichan Lake in 1936, which was later moved after World War II to Royston, at which time



Fig. 20. Anna Lem at her 100th birthday. Photo in private collection.



Fig. 21. 'Anna'. Photo: Hank Helm.

she became obsessed with rhododendrons. They were initially imported from England via the Panama Canal, but this was an uncertain and cumbersome way, so later she turned to growing them from seeds, which often proved not to grow to the correct name of the seed. She then on one hand tried to establish, like J. Stevenson, what was the correct application of names, and on the other, named the best hybrids which came her way. Gradually (around 1950) she also made crossings to improve these plants, her best and most famous being ‘Royston Red’ (Fig. 23), which to her disappointment did not become hardier after her attempt to improve its hardiness. Nevertheless, it is a striking, floriferous plant in milder regions. There it is far better than the hardier, omnipresent Hobbie hybrids of *R. forrestii* var. *repens*. Her *R. auriculatum* crosses have not proven to be so successful as they are slow to flower.

Another woman, Esther Greer (1909-1999), (Fig. 24), established herself with husband and family in Eugene, Oregon, about this time (1952), where they started to grow rhododendrons and to breed new cultivars. Ester took part in this and her son Harold remembers that she liked to walk around with a brush and make hybrids. However, she was not as methodical as Mary Greig and kept no records of what she crossed. Her son Harold named one of her plants ‘Mother Greer’ (Fig. 25), a great, hardy plant of the low blue-violet ones, presumably a *R. hippophaeoides* hybrid.

Another outstanding, independent breeder in the Pacific region was Elsie Watson (1914-2011). (Fig. 26). After her husband had been crippled in an accident around 1960, she started hybridizing in her garden to improve existing cultivars in both flower color and growth form (Bell 2005). She was a trained gardener and achieved remarkable results, particularly some striking blue-coloured, large rhododendrons, such as the now widespread ‘Blue Boy’ (Fig. 27). She had no plant nursery of her own and cooperated with Meerkerk Nurseries in Greenbank, Washington State.

About this time, the teacher couple Rhobertha (1925-2014) and Ivan Arneson (Fig. 28) settled on a farm near Canby in Oregon. There they started to improve azaleas in a breeding program mainly aimed at improving flower color (Arneson 1995). It took some time before the results were presented, but through the 1980s, many excellent cultivars were presented, among them the outstanding ‘Arneson’s Gem’ (Fig. 29). They worked as a team, so I cannot say who did what, but there is no doubt that Robertha contributed considerably to this success.

Another close team who took up rhododendron breeding was the couple Velma (1910-2010, (Fig. 30) and Charles Russell (“Russ”) Haag. They started breeding when living in New Jersey about 1960, and took with them most of the resulting plants when they moved to a mountain area near Brevard, North Carolina, where they established a rhododendron garden and continuing to breed cultivars. None of them were professional gardeners, Velma’s occupation being that of a baker. They had, however, become interested in rhododendrons through a friend and joined the American Rhododendron Society, where they were inspired by Joseph Gable (1896-1972) and other pioneers. Like him, they aimed at producing hardy cultivars, of which around 40 were named from the many seedlings, among them the—at least locally popular—‘Smokey Mountain’ (Fig. 31). This hybrid is unfortunately not well known in Europe, though it is a much better alternative to the old and leggy Waterer hybrid ‘Sappho’. Gradually they turned their interest into making good, yellow-flowering cultivars, only a few of which were named. Unfortunately, they often used the stately *R. lacteum* and hybrids thereof as a parent, and this gave plants (Fig. 30) that only flowered after many years of growth, and then rather sparsely, so these have not gained in popularity even though the flowers are spectacular when produced. Velma was widowed in 1995, and in spite of her old age, continued the work, even registering new cultivars.

Yet another couple, Ken and Sandra McDonald (1937-) (Fig. 32), have contributed new cultivars of Japanese azaleas. In this case, Ken inherited a nursery in Hampton, Virginia, and she was the rhododendron expert, perhaps the best educated of



Fig. 22. Mary Greig photographed in 1980 with a yellow favorite, ‘Marcia’, which she used in breeding. Photographer unknown.



Fig. 23. ‘Royston Red’. Photo: Harold Greer.



Fig. 24. Ester Greer. Photo in private collection.



Fig. 25. 'Mother Greer' at the Norwegian Arboretum'. Photo: Terhi Pousi.



Fig. 26. Elsie Watson in her garden. Photo: William Heller.



Fig. 28. Rhobertha and Ivan Arneson. Photo in private collection.



Fig. 30. Velma Haag with unnamed *R. lacteum* hybrid, flowering for the first time after 15 years.



Fig. 27. 'Blue Boy'. Photo: Harold Greer.



Fig. 29. 'Arneson's Gem' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 31. 'Smoky Mountains' at the Haag Rhododendron Garden. Photo: Don Hyatt.



Fig. 32. Sandra McDonald and her husband Ken in their garden. Photo in private collection.



Fig. 33. 'Blushing Angel'. Photo: Sandra McDonald.

them all. She earned a doctoral degree in hybridizing under the legendary Gustav Mehlquist (1906-1999), and in her work with Japanese azaleas, she has released a number of brilliant cultivars since the 1970s, one of her best being 'Blushing Angel' (Fig. 33).

Finally, an example of an individual woman is Vivian Abney (Fig. 34), who took up improving azaleas after she found that



Fig. 34. Vivian Abney. Photo in private collection.



Fig. 35. 'Miss Scarlett'*, a recently named azalea. Photo: Vivian Abney.

some in her nursery in Sevierville, TN, were not as colorful as she wanted. She grew up on a farm in Tennessee and established a nursery there, where she started a breeding program involving native azalea species such as *R. austrinum*, *R. alabamense* and *R. calendulaceum*. Recently, she named the brilliant 'Miss Scarlett'* (Fig. 35) in this series.

Vivian Abney is a rare example of an active, individual woman breeder, for there are surprisingly few instances today when women are taking a greater involvement in what men traditionally did. There are certainly none in the British Isles, but I know, however, about two Finnish ladies who from the 1970s started breeding as part of a program designed by professor Peter Tigerstedt (1936-) to develop hardier cultivars. Marjatta Uosikainen (1950-) (Fig. 36), has until now produced 23 larger evergreen rhododendrons which can all be seen in the Haaga Park in central Helsinki. One of her best is the temperamental 'Elviira' (Fig. 37), which is named after her grandmother. The other breeder, Anu Väinölä (1960-) (Fig. 38), later took on azalea breeding and has produced a dozen floriferous, often small-flowered cultivars, such as, for example 'Adalmina' (Fig. 39), the name of a princess in one of the works by Zacharias Topelius (1818-1898), a national poet. She says that she is intentionally using names from Finnish folktales which does not lead to translation into other languages. They deserve a wider distribution, particularly in the colder parts of North America.



Fig. 36. Marjatta Uosikainen, when presenting a book. Photo: Marja Roiha.



Fig. 37. 'Elviira' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 39. 'Adalmina'. Photo: Anu Väinölä.



Fig. 38. Anu Väinölä. Photo in private collection.

Cultivars Named After Ladies.

While there are few species named after ladies, there are many cultivars with such names, too many to list here. There are clearly trends in this naming, following the tendencies elsewhere in society. As the hybridizing started in the British Isles, the earliest examples are from there, one of the oldest being the well-known 'Cynthia' from 1821 (Fig. 40), unusual for those days in just using the Christian name only. This indicates that we are hardly dealing with a living person, as the name is synonymous with Artemis, the goddess of hunting, perhaps reflecting the unusual reddish color of the flowers, unique for a rhododendron in those days. This way of using ladies names only started to be fashionable later. A breeder who did so was Lord Henry Aberconway (1879-1953). His famous 'Elizabeth' (Fig.

41) from 1939 is named after his daughter. More surprising is his very beautiful 'Vanessa' (Fig. 42), which is named after the artist and suffragette Vanessa Bell (1879-1961), the sister of the controversial Virginia Woolf (Fig. 43), as well as a friend of



Fig. 40 'Cynthia' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 41. 'Elizabeth' at the Norwegian Arboretum. Photo: Terhi Pousi.



Fig. 42. 'Vanessa Pastel' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

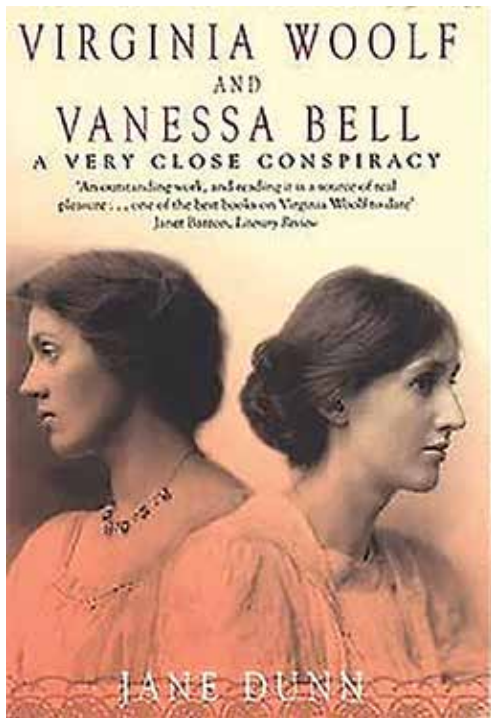


Fig. 43. Vanessa Bell (to the left) and her sister Virginia Woolf on the cover of a book about them by Jane Dunn.

Lady Aberconway.

Usually the ladies were given full names, an early example from 1869 being 'Nancy Waterer' (Fig. 44), the well-known azalea. Even so, this name is problematic since I have not found any family member of that name. Pam Hayward has, however, pointed out (pers. comm.) that Nancy might be

a nickname for Anne, and of those there are at least two in the family. I presume it is the daughter of the breeder, Anthony Waterer (1832-1895), who was born in 1849. Later in 1920, her brother, Antony Waterer Jr. (1850-1934), named an evergreen cultivar after her as 'Mrs. Furnivall' (Fig. 45), as she in 1897 had married Charles Furnivall. This name is also a bit unusual, since in most cases wives at this time were called by their husband's initials, like another Waterer hybrid of that period, 'Mrs. J. G. Millais' (Fig. 46). The lady in question is Frances Margaret ("Fanny") Millais (1869-

1960, Fig. 47), the wife of the adventurer John Guille Millais (1875-1938) who wrote the first important monograph on rhododendrons and their hybridizing (1917-1923), and started hybridizing rhododendrons at his home at Horsham.

When names of noble or royal ladies were used, they often appear with both title and full name. The worst example is 'The Honourable Jean Marie de Montague' (Fig. 48). She (b. 1927)



Fig. 44. 'Nancy Waterer' at the Norwegian Arboretum, Milde. Photo: P. M. Jørgensen.



Fig. 45. 'Mrs. Furnivall' with 'Mrs. Furnivall's Daughter' (paler to the right), a seedling of the first, at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 46. 'Mrs. J. G. Millais'. Photo: David Millais.

(Fig. 49), was the daughter of the third Baron Swaythling at Town Hill near Southampton where on his estate, he grew and bred rhododendrons (see above). Most of the other noble and royal ladies have no connection with rhododendrons, except that some were good customers, using these plants in their estates. There is one exception, though, the Queen Mother, Queen Elizabeth (1900-2002), (Fig. 50), who was a very knowledgeable rhododendron fan and had several cultivars



Fig. 47. The Millais family outside their house in Horsham about 1905. Fanny to the left in the background with her husband Jack, the children Rosamund and Geoffrey in the front. Photo in private collection.



Fig. 48. 'The Honourable Jean Marie de Montague'. Photo: Kenneth Cox.

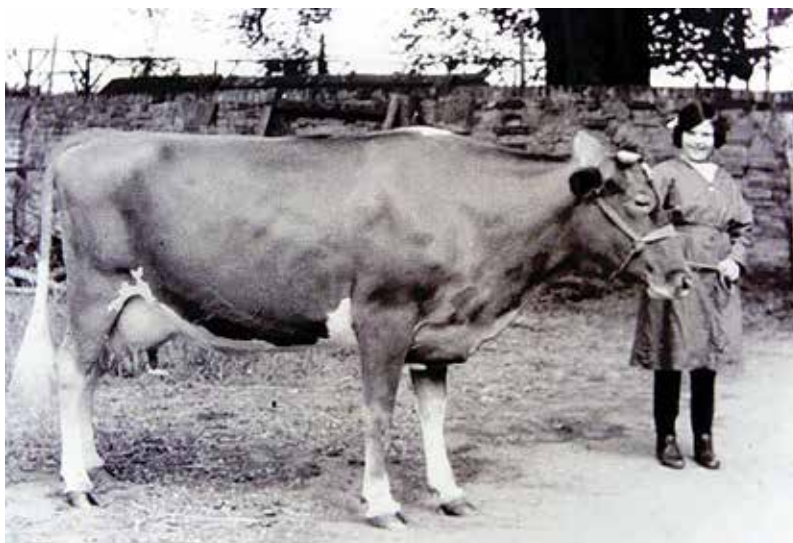


Fig. 49. Jean Marie as a teenager with her favorite cow. Photo in private collection.



Fig. 50. Queen Elizabeth, the Queen Mother. Wikipedia Public Domain.



Fig. 52. 'Madame Carvalho' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

named after her, the best being 'Elizabeth of Glamis' (Fig. 51), a recently named cultivar carrying the name of the castle in Scotland where she was born. She admired this cross made by Peter Cox when visiting Glendock gardens in Scotland.

There are also many names related to famous women with no connection at all to rhododendrons. This started as far back as the mid-1800s. An example being 'Madame Carvalho' (Fig. 52), a Waterer cultivar from 1866. The lady in question was the famous French-Brazil coloratura singer Marie Caroline Miolan Carvalho (1827-1895, Fig. 53) who at this time had a status rather like our popstars, none of which I have found have been remembered in a rhododendron's name. There are, however, some actresses who has been given that honor. The little known, rather ordinary, Dutch 'Gina Lollobrigida' (Fig. 54), named after the Italian film star, was registered in 1965. The great German *R. insignis* cultivar 'Brigitte' (Fig. 55), which was introduced in 1980, is most probably named after the French Brigitte Bardot (b. 1934) who liked pink blouses. However, here the American breeders are the pioneers, the excellent 'Janet Blair' (Fig. 56) was introduced by David Leach in 1962. It is named after the film-actress and singer Janet Blair (1921-2007) (Fig. 57), who was popular during the Second World War and the post war years.

Luckily, this trend was not taken up by others. Many American rhododendron names commemorate family members or close friends, which is a much better naming strategy. I'll mention a few obvious cases among the best cultivars: the brilliant 'Grace Seabrook'



Fig. 51. 'Elizabeth of Glamis' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 53. The opera diva Caroline Carvalho as Marguerite in 'Faust' by Gounod, a role she sang with great success at the premier in 1859. Wikipedia Public Domain.



Fig. 54. 'Gina Lollobrigida'. Photo: unknown.



Fig. 55. 'Brigitte' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 56. 'Janet Blair'. Photo: Hugh Conlon.



Fig. 58. 'Grace Seabrook' at the Norwegian Arboretum. Photo: Terhi Pousi.



Fig. 57. Actress and singer Janet Blair. Photo: Wikipedia Public Domain.

(Seabrook 1965, Fig. 58), the long-lasting, large-flowered 'Phyllis Korn' (Korn 1969, Fig. 59) and the lovely 'Isabel Pierce' (Pierce 1975, Fig. 60). The latter is actually a Lem cross where he used 'Anna' (see above) as a mother in the Walloper series. This is less impressive than many others, but more colorful. It is less obvious that 'Patty Bee' (Fig. 61) is named after the hybridizer's (Warren Berg's) wife Patricia. There are certainly many names of women in the family/friend circle of the breeders which have been used, but those are difficult to trace since the origin of the names have not always been recorded. I have, however, with the help of Harold Greer, managed to explain the much praised and honoured 'Trude Webster' (Fig. 60), her maiden name actually being Gertrude (Fig. 61). This cultivar is named after the Greer's family doctor who assisted at his birth. She definitely is connected to American rhododendron history!



Fig. 59. 'Phyllis Korn' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

Acknowledgements

This article would have been impossible to make without the



Fig. 60. 'Isabel Pierce' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.



Fig. 61. 'Patty Bee' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

assistance of numerous persons. I am above all thankful to Ms. Pam Hayward of the Rhododendron Group at the RHS, London. She has been indefatigable. I have also benefitted from contacts with David Millais and Kenneth Cox, who also have provided photographs.

In the USA I have above all had the support of Sonja Nelson, Mount Vernon, WA, and Harold Greer, Eugene, OR.

At home I have been generously assisted by me wife Gerd and daughter Katarina, as well as by Terhi Pousi of the Norwegian Arboretum, Milde. The latter has also provided me with numerous photos.

To all of you my heartfelt thanks! Without your support it would not have been possible to produce this article!

* = not registered.

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Fig. 62. 'Trude Webster' at the Norwegian Arboretum, Milde. Photo: Terhi Pousi.

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Per M. Jørgensen is professor emeritus of taxonomic botany at the University of Bergen, Norway, where he was educated. He is a specialist of lichens, but developed a keen interest in Rhododendron, including its horticultural history, when becoming involved in the establishment of the rhododendron collection at The Norwegian Arboretum, Milde. He spent a sabbatical at The Royal Botanical Gardens, Edinburgh, and is a founder member of the Norwegian Rhododendron Society and a Foreign Fellow of The Linnean Society in London.

Rhododendron Calendar

- | | |
|-------------|---|
| 2020 | ARS Fall Regional Conference, Cancelled. |
| 2020 | New Zealand Rhododendron Association's 76th convention, Timaru, Postponed until 2021. Dates to be determined. |
| 2020 | Australian Rhododendron Association's conference, Upper Burnie, Tasmania. Postponed until 2021. Dates to be determined. |
| 2021 | ARS Spring Convention, Wolfville, Nova Scotia, Canada, June 2-6, 2021. |
| 2021 | ARS Western Regional Conference, Florence, OR, October 13, 14 and 15, 2021. |
| 2022 | ARS 75th +2 Anniversary Convention, Vancouver, Washington. Board Meeting. April 27 - May 1, 2022. |
| 2022 | Fall - Eastern North America - Open |
| 2023 | ARS Spring Convention, Atlanta, GA. Joint ARS/ASA meeting. Dates to be determined. |
| 2024 | ARS Spring Convention, Pacific Northwest. Dates and location TBD. |

If you can help in the future, please contact Ann Mangels at wamangels@aol.com.

The 2020 RHS Loder Rhododendron Cup Recipient

This annual award first presented in 1921 recognises the value of the work of the recipient to horticulture, and Ken Cox, an ARS member of the Scottish Chapter and the third generation of the noted Scottish Rhododendron nursery dynasty, is the 2019 recipient of the Loder Cup. He is a great plantsman, plant explorer, author and award-winning garden centre owner. He is known for his forthright views, which he expresses both in his books and in his lectures.

His books are on every rhododendron enthusiasts' shelves and include "*The Encyclopaedia of Rhododendron Species*" and "*The Encyclopaedia of Rhododendron Hybrids*", both written with his father Peter Cox. He has also written several more popular rhododendron titles and three books about gardening and plants for Scotland. His recently published "*Woodland Gardening*" lavishly features how to garden with rhododendrons and accompanying trees and shrubs and has received glowing reviews. His promotional lectures for this book have been received with great acclaim.

Ken has led nine plant hunting expeditions to Tibet and Arunachal Pradesh since 1995 and is especially knowledgeable on *Rhododendron* species, having introduced a number of new species. He is the custodian of Glendock Gardens near Perth, Scotland, which is world renowned for its rhododendron collection. There can be few others that have promoted rhododendrons as much as Ken and he fully deserves this award.

Ken was presented with the Loder Cup at the Hampton Court Flower Show in July, 2020, where he was exhibiting rhododendrons with coloured foliage.

"Rhododendrons, Camellias and Magnolias 2020"

In Memoriam

Cowichan Valley: Dr. Ian E. Efford

Dr. Ian E. Efford sadly passed away on June 7, 2020. He earned his Ph. D. in Ecology from Cambridge and did his post-doctorate in Oceanography at the University of California. He was a professor at the University of British Columbia for 15 years, a Director General of Conservation and Renewable Energy for the Government of Canada, worked for the Canadian International Development Agency on African development projects, and after leaving government, was a consultant on science policy and international development, particularly in Africa. A world-recognised ecologist and conservationist professionally, he was also active in regional garden societies (especially iris, rock garden and rhododendron), initially in the Ottawa-area in eastern Ontario, Canada, and after retirement, on Vancouver Island in British Columbia. Ian became active in the Cowichan Valley Rhododendron Society, serving as President in 2011 – 2012.

He was a dedicated educator and mentor and generously gave of his knowledge and time to ensure the success of the CVRS and its goals. He served on the executive for a number of years and with his guidance all activities were elevated to the highest of standards. Ian initiated projects; researched and organized; and participated in meetings, work parties, explorations, celebrations, garden tours, conventions, guest host luncheons, dinners, propagation events, and book club meetings. During this time, he authored the book "*The Public Rhododendrons Gardens of Vancouver Island*."

He was awarded the American Rhododendron Society Silver Medal for his exceptional contributions on September 28, 2019, in Parksville, British Columbia, Canada.

Things You Should Know About the ARS Websites

Bob Weissman
ARS Electronic Media Committee Chair
Mountain View, CA

A new feature has recently been added at the Office of the ARS (OARS) website (www.arsoffice.org). The North American Regional Registry of Rhododendron names is now available online at the OARS website.

In 1955 the International Horticultural Congress designated the Royal Horticultural Society to be the International Cultivar Registration Authority (ICRA) for genus *Rhododendron*. Since 1957 the ARS receives and processes name registration applications for rhododendrons and azaleas named by North American registrants, before submitting them to the ICRA. After ICRA approval of a new name, the ARS Registrar of Plant Names includes the name in the North American Regional Registry. Since 1957 the cultivar descriptions have been published in the ARS' quarterly publication. Today the North American Regional Registry lists about 5200 registered names.

To access the online North American Regional Registry, open the OARS home page, and click on the "Search Names in the North American Regional Registry" link in either the "Members" or "Society" sections. The next page displays several search options. If the exact registered cultivar name is known enter the name in the "Find a Specific Cultivar Name" box and click the "Submit" button. If unsure about the registered name use either the "Find Cultivar Names Beginning with Letter(s)" or the "Find Cultivar Names Containing Specific Letters" search options to find the correct name.

If the name is present in the Registry database, the "Find a Specific Cultivar Name" search result will look like the example below:

Search for cultivar name: 'Dexter's Spice' Cultivar 'Dexter's Spice' is a registered name in the North American Regional Registry. Cultivar description can be found in the 1978 ARS Journal, volume 32, issue number 2. The Journal issue can be viewed at the Virginia Tech University Library Archive.

The search result will include "azalea", "vireya" or "azeleodendron", where appropriate. If the submitted name is not found in the Registry the search result will say "Name is not in the North American Regional Registry".

The Virginia Tech Library Archive includes ARS quarterly issues from Volume 1 (1947) to Volume 63 (2009). More recent Journal issues, Volume 67 (2013) to Volume 74 (2020) are online at the OARS website where access is restricted to current ARS members and password-protected login is required. Members who don't yet have an OARS login can register a personal username and password at the OARS website. Work is ongoing to archive Volumes 64 - 66 that can't yet be viewed online.

Members will find the online Regional Registry can be used to quickly find cultivar descriptions. Published descriptions for registered cultivars are located by entering the exact name in the "Find Published Descriptions for Cultivar Name" search box and clicking the "Submit" button. An example search result for 'Bali' is shown below:

Search for description of registered cultivar named: 'Bali'. Cultivar description can be found in the 1982 ARS Journal, volume 36, issue number 2. The Journal issue can be viewed at the Virginia Tech University Library Archive.

Clicking the Virginia Tech University Library Archive link will take you directly to the web page with the cultivar description for the searched name.

The search result for a cultivar description published in a recent Journal issue is shown below:

Search for description of registered cultivar named: 'Fastion Plate'. Cultivar description can be found in the 2020 ARS Journal, volume 74, issue number 2. The Journal issue can be viewed by ARS members at the OARS website. Login required.

Clicking the OARS website link opens the login web page at the OARS website where the Journal American Rhododendron Society electronic edition issues are accessible. Login with your personal username and password.

It is important to understand that the North American Regional Registry is a subset of cultivar names found in the International Registry. It doesn't include any non-North American registered cultivar names, nor does it include the North American cultivar names registered prior to 1957 when the ARS first stated to process registration applications. When checking if a name is available for registration the full list of names in the International Registry needs to be consulted.

For assistance with registering cultivar names contact the current North American Registrar of Plant Names, Michael Martin Mills, at arsregistrar@gmail.com.

"Every time I imagine a garden in an architectural setting, it turns into a magical place. I think of gardens I have seen, that I believe I have seen, that I long to see, surrounded by simple walls, columns, arcades or the facades of buildings – sheltered places of great intimacy where I want to stay for a long time. "

Peter Zumthor

Rhododendrons for Beginners: The American Azaleas in Subgenus *Hymenanthès*, Section *Rhodora*, and the Asian Azaleas in Subgenera *Hymenanthès*, *Azaleastrum* and *Choniastrum*

Glen Jamieson

Parksville, BC,
Canada

(Most photos
from Hirsutum.
info)



Azaleas in Subgenus *Hymenanthès*, Section *Pentanthera*, were previously discussed (Jamieson 2018) in JARS but there are many other azalea species within the genus *Rhododendron*. There are a few deciduous species but many of the remaining ones are evergreen azaleas, sometimes known as Japanese azaleas, which are very popular and are ideal for any size of garden from a window box to a large estate. Most of these azaleas grow to 60-75 cm (2-2.5 ft) in 10 years, while others, such as *R. nakaharae*, are prostrate, and are excellent for cascading over walls or out of tubs.

Evergreen azaleas form such a persistent part of European and North American landscapes that we tend to think of them as being native to this part of the world.

In actuality, they are a more recent introduction to many of our gardens, though a large number of cultivars (man-made introductions) were introduced early in the past century. There are no native evergreen azaleas in North America and most evergreen species occur naturally in eastern Asia from Japan, the Ryukyu Islands, Taiwan, Korea, China, Vietnam, and the Philippines. Evergreen azaleas are classified in subgenus *Azaleastrum*, which includes about 90 species. They offer a wide variety of size, form, color, bloom time, habitat, and characteristics so that in defining an evergreen azalea, it is best not to deal in absolutes, as you can always find exceptions to the general rules in this group (Azalea ARS Chapter website).

The best definition of an evergreen azalea is the primary description of it always having foliage to some degree. Actually, in many, there are two sets of leaves: (1) spring leaves which are thinner and larger, are usually along the stem, and which turn yellow and fall off in the fall, and (2) summer leaves that are smaller, thicker, more terminal and which persist over the winter, depending on the clone (ancestry) and the weather. Thus, the leaves are termed dimorphic (two types), each type lasting just long enough to keep the evergreen appearance of the azalea, in distinct contrast to the deciduous types of azaleas that lose all foliage during late fall and winter. Climatic conditions, cultural conditions, and the genetics of each plant all affect the amount of foliage retained, as each species has its limits of what it can endure (Azalea ARS Chapter website).

Most evergreen azaleas species and hybrids, are marketed commercially as shrubs, and this would be an apt description for their original planting. In ten-years-time, though, depending on climatic conditions and the specific species or cultivar, a small shrub can grow considerably larger, and in twenty or thirty years reach the size of a small tree. Kurume azaleas that look so dainty with their small leaves can in time reach a height of 3 m (ten feet) or more. Southern Indian (*R. indicum*) varieties can grow even taller and spread out even farther, so it is necessary to understand the size that can be reached in ten years or more to determine just how and where to plant these azaleas in a landscape. Every hybrid group contains exceptions and so, for example, not every Satsuki azalea remains low and spreading in its growth habit.

Fortunately, most evergreens adapt well to pruning and can be kept to an appropriate size in a landscape, though if you prefer to not lose the blooms for one year, trimming should be done in late spring after flowering but before the next year's buds set. Adaptability to pruning has been proven to the extreme over the centuries by the Japanese, who developed, for example, numerous cultivars and employed severe pruning of evergreen azaleas to resemble small buns of green growth that reflected images of rocks along garden pathways in classic Japanese gardening style. Many times, large overgrown azaleas can be cut back almost to the ground and come back to reach the desired size in several years. It's maintaining the root system that counts, as any bonsai artist will attest!

Historically, the first evergreen azaleas to enter North America came from China and Japan via Europe in the 1830s as green house plants, the thought being that the plants were tender and required protection. By 1848, *R. indicum* (Indian) varieties were being planted at Magnolia Plantation near Charleston, SC, and were flourishing outdoors. The Fruitland Nursery (aka Berckman's) in Augusta, GA, was instrumental in propagating and spreading the use of the Southern Indian hybrids in the Southeast USA. As more varieties of evergreen azaleas reached Europe and America, more hybrid groups were developed. Greenhouse varieties from the Belgian nursery industry became widespread, so that the name Belgian Indica was applied to tender, forcing varieties. Kurume hybrids were introduced to the U.S. in 1915 and by E. H. Wilson in 1917 with his importation of fifty selected plants (Wilson's Fifty) from the Oishi Gardens near Kurume, Japan, and western names were added to help in their assimilation. Over time, other groups of hybrids were imported by various nurserymen, the U.S. Department of Agriculture, and a number of distinguished English plant explorers. Major additions to the growing lists of available evergreen azaleas were provided by the hybridizing efforts of Joe Gable, B.Y. Morrison, Julian Chisolm and Dr. E.A. Merritt, Orlando Pride, Tony Shammarello, and Peter Girard, just to mention a few, all of whom worked in the 1940s, 50s, and 60s. Hybridizing efforts continue to the present day through the work of Joe Klimavicz, Robert B. Stewart, Pete Vines, Sandra MacDonald, Nuccio

Nurseries, James Harris, and many more who are still providing fresh introductions. Perhaps, the most interesting new developments follow the re-blooming hybrids of Buddy Lee with the highly successful Encore® series, as well as more re-blooming developments from the Bloom-a-Thon® azaleas of Bob Head and the autumn-blooming Harris introductions from the McCorkle Nursery (Azalea ARS Chapter website).

The current taxonomic structure for *Rhododendron* accepted by the ARS (Chamberlain *et al.* 1996) is morphological, and is based on the work of Hermann Sleumer and David Chamberlain. It was derived by comparing, species by species, the characteristics of homologous plant parts, such as the leaf, the inflorescence and the seed. In contrast, a new taxonomic system proposed by Goetsch *et al.* (2005) is based on the characters present at homologous positions in the same gene, more particularly whether that position contains an A, G, C or T in the chemical structure of the gene (Nelson 2006).

Goetsch *et al.* (2005) proposed a revised taxonomic system that reduced the number of subgenera from eight to six. Subgenus names *Rhododendron*, *Hymenanthus*, and *Azaleastrum* were retained, although the latter was considerably broadened in content. They proposed that the subgenus designations *Pentanthera*, *Candidastrum* and *Mumeazalea* be discontinued, since the species within them were reassigned to other subgenera. Additionally, they proposed that section *Choniastrum* be a separate subgenus, since its species were the only ones in Clade A that have no lepidote scales.

Their research showed that all rhododendrons in the current classification, with the exception of *R. camtschaticum*, fall within three “clades,” or monophyletic groups. They found the current subgenus *Rhododendron* to be monophyletic and they referred to it as “Clade A.” It includes current sections *Rhododendron*, *Pogonanthum* and *Schistanthe*, as well as the former genus *Ledum*.

“Clade B” includes the current subgenus *Hymenanthus* plus the current section *Pentanthera* and *R. canadense* (in the Edinburgh Revision, section *Pentanthera* was included in the subgenus *Pentanthera*), while the remaining taxa of subgenus *Pentanthera* were moved to Clade C.

“Clade C” includes the current sections *Azaleastrum*, *Tsutsusi*, *Brachycalyx*, *Rhodora*, *Sciadorhodion*, and *Nipponicum* as well as the subgenera *Mumeazalea* and *Candidastrum* and the former genus *Menziesia*.

The reality, however, is that while most of the changes proposed by Goetsch *et al.* (2005) are generally accepted by many rhododendron experts, much of the existing rhododendron literature was published before 2005 and so doesn't reflect these later studies, and few laypeople have read or even understand the recent research conducted on gene characteristics. In the following, I have largely adopted the changes proposed by Goetsch *et al.* (2005) but as can be seen below in my comment in Section *Rhodora*, because the main taxonomic reference recognized by the ARS is Chamberlain *et al.* (1996), in some cases I have still utilized that system, with caveats.

Species descriptions are derived from McQuire and Robinson (2009), Cox and Cox (1997) and the ARS and RSF websites. **Red font** indicates the more available species.

A. Subgenus *Hymenanthus*

1. Section *Pentanthera* (previously discussed in Jamieson 2018)

Subsection *Pentanthera*

Subsection *Sinensia*

2. Section *Rhodora* (two species)

The corollas in species from this section are divided almost to the base, so are two-lipped. The two species have only this in common, and are not closely related. Leaves are scattered and not in whorls and flowers are not fragrant.

R. canadense (Epithet: from Canada)

This 0.3-1.2 m (1-4 ft) high species, often referred to as *Rhodora*, from northeastern North America has 3-6 rose-purple flowers in its inflorescence, which open before the leaves in April to May. There is also a white form, termed f. *albiflorum*.

R. vaseyi (Epithet: after G.R. Vasey, its discoverer)

This is a large, upright deciduous azalea from the Appalachian Mountains of North Carolina, USA, with distinctive elliptic leaves tapering to a point at each end, and which have brilliant red fall foliage color in most regions. The widely funnel-shaped white to pale pink flowers have orange to reddish-brown spots and are beautiful in



R. canadense. Photo: Hans Eiberg.



R. canadense f. *albiflorum*. Photo: Hans Eiberg.

shape, poise and color. It flowers in the early to mid-spring, can tolerate temperature to -29° C (-20° F) and although easily cultivated and quite common where it occurs naturally, the Pinkshell Azalea has a very limited range in the wild.

Note: The distinct floral structure resulted in “*Rhodora*” being treated as a distinct genus at one time. Treating it as such though resulted in the remainder of the genus *Rhododendron* being paraphyletic (a group is paraphyletic if it consists of the group’s last common ancestor and all descendants of that ancestor). However detailed phylogenetic analysis revealed that the genus *Rhodora* was not a distinct entity, but was rather polyphyletic (derived from more than one common evolutionary ancestor or ancestral group and therefore not suitable for placing all in the same taxon), and it was disassembled, each species being allocated to other sections.

Rhododendron canadense was moved to section *Pentanthera*, subgenus *Hymenanthus* and *Rhododendron vaseyi* was moved to section *Sciadorhodion*, which then became a new section of subgenus *Azaleastrum* (Goetsch et al. 2005). However, because Chamberlain *et al.* (1996) placed both species together, I am describing them together here because that is what most people still think.



R. vaseyi. Photo: Hans Eiberg.

3. Section *Viscidula* (one species)

R. nipponicum (Epithet: from Japan)

An unusual deciduous azalea from central Japan with striking large obovate leaves in whorls. Beautiful deep chocolate brown, smooth and peeling bark and bright red-dish-purple fall foliage color. The flowers appear as pendulous white, unspotted bells in a 6-15 flower inflorescence. It grows best in light shade or the woodland garden and is hardy to at least -5° F (-21° C).



R. nipponicum. Photo: Jonny Larsen.

B. Subgenus *Azaleastrum*

This subgenus initially included two sections, *Choniastrum* and *Azaleastrum*, but in 2005 *Choniastrum* was elevated to subgenus rank after cladistic analysis (Goetsch *et al.*) revealed that it along with subgenus *Rhododendron* formed a major clade, distinct from other sections of subgenus *Azaleastrum*, and simultaneously, sections *Sciadorhodion* and *Tsutsusi* were added to subgenus *Azaleastrum*, providing a new total there of three sections.

Azaleastrum sections:

1. *Azaleastrum* (4 species)
2. *Sciadorhodion* (4 species)
3. *Tsutsusi* (~81 species)

Species Details

1) Section *Azaleastrum*

The four elepidote species in this section are usually small shrubs to two m (6.5 ft) in cultivation, but may be up to eight m (26 ft) in the wild. Branchlets are usually slender, their young growth brightly coloured, flowers singular, ovary bristly and with five stamens. They are generally rare in cultivation, with *R. ovatum* being most available.

R. hongkongense (Epithet: from Hong Kong)

This tender, 1.2-1.5 m (4-5 ft) high species from Hong Kong and Guangdong, China, has crimson-purple young leaves and singular, sometimes fragrant white flowers with crimson spots. It flowers from March to April and according to the



R. hongkongense. Photo: Red Cavender.

RSF, is hardy to -9°C (15°F).

R. leptothrium (Epithet: with thin leaves)

This 60 cm to 7.5 m (2-25 ft) shrub from Yunnan and upper Myanmar has red-dish young growth and singular, pale pink to deep magenta-rose flowers, with or without crimson spots. It flowers from April to May and is hardy to -15°C (5°F).

R. ovatum (Epithet: egg-shaped)

A 1-3 m (3-10 ft) shrub is relatively widely distributed, ranging from central China to Taiwan, and is a very widespread and variable species. Its new growth is reddish-brown and is singular flowers 2.5-5 cm (1-2 in) across range in colour from white to pale purple, with or without pink or darker spots. It flowers from May to June and is moderately hardy to -15°C (5°F).

R. vialii (Epithet: after Pere Paul Vial, of the French mission in Yunnan)

A 1.2-4.5 m (4-15 ft) shrub from Yunnan, this species has a tubular crimson to pink corolla, with the tube longer than the lobes. It flowers from January to March and is also moderately hardy to -15°C (5°F).

2) Section *Sciadorhodon*

Species in this section have more or less ovate leaves in clusters or whorls of five at the ends of the branches, a zygomorphic corolla (flowers of irregular shape that can be divided into two equal halves along only one vertical axis), and ten stamens

R. albrechtii (Epithet: after M. Albrecht, Russian navel surgeon)

This Japanese shrub grows 1-2.5 m (3-8 ft) high and has leaves with both surfaces densely strigose (stiff hairs lying flat). Its red-purple to deep rose flowers, with olive-green spots, occur 2-5 in a truss, and open before or with the leaves. It is a choice plant and well worth having.

R. pentaphyllum (Epithet: with five leaves)

This Japanese shrub to small tree is 1.8-7.5 m (6-25 ft) high and has leaves that can be either strigose or not strigose. Its inflorescence has 1-2 bright rose-pink flowers, sometimes with brown flecks on the upper three lobes, and it flowers from March to May.

R. quinquefolium (Epithet: leaves in fives)

See below (p. 35)—now proposed to be in Section *Tsutsusi*, Subsection *Brachycalyx*.

R. schlippenbachii (Epithet: after Baron A. von Schlippenbach, a Russian naval officer and traveler)



R. leptothrium. Photo: Jan Brodersen.



R. ovatum. Photo: Scottish Society.



R. vialii. Photo: Hank Helm.



R. albrechtii. Photo: Hans Eiberg.



R. pentaphyllum. Photo: Hans Eiberg.



R. schlippenbachii. Photo: Shuji Inoue.

This choice Korean shrub 1-5 m (3-16 ft) high has young shoots with long-staked glands, later eglandular (no glands), and an inflorescence with 3-6 pale to rose-pink to white flowers in April to May. The flowers open before the leaves, and the species is larger in all its parts than species in the rest of the section. After flowering, it might be confused with the equally large-leaved *R. nipponicum*, but the leaves are alternate in that species.

R. vaseyi (see above Section *Rhodora* pp. 32-33.)

3) Section *Tsutsusi*

a) Subsection *Brachycalyx* (16 species (9 discussed))

These species have deciduous leaves that are pseudovercillate (pseudowhorls, a circle of leaves that look like a whorl, but with the leaves emerging from separate axils) and usually rhombic (diamond-shaped), with leaves and flowers clustered at the shoot apex. Stamens almost always 10, with wild species found mainly outside China. Flowers may appear before or after the leaves. As with Subsection *Tsutsui*, the taxonomy of this group needs revision, with especially plants of *R. reticulatum* in cultivation potentially representing a number of species, subspecies or forms.

R. amagianum (Epithet: from Mt. Amagi, Japan)

This shrub up to 5 m (16 ft) high from Hondo, Japan, has leaves that are rhombic (diamond-shaped) or rhombic-ovate, and while this species is similar to *R. weyrichii* in having red flowers and similar shaped leaves, it differs in that both its petioles and leaf midribs are densely villose (hairy) dorsally and in its scarlet or brick-red flowers with darker spots opening after leaf emergence from June to July. In contrast, the petioles of *R. weyrichii* are only sparsely pubescent, the leaf midribs are pubescent on both surfaces and later glabrescent (no hairs), and the flowers open before or with the leaves.



R. amagianum. Photo: Hans Eiberg.

R. decandrum (Epithet: with ten stamens)

This species differs primarily from *R. dilatatum* by having twice as many (10) stamens (sometimes only seven to nine) and its native distribution is more southern than that of *R. dilatatum*. It has magenta spotted flowers from April to mid-May.

R. dilatatum (Epithet: spread out, referring to the flowers)

R. dilatatum is distributed principally in central Honshu and in Hokkaido, Japan, and is the only taxon in section *Brachycalyx* that has five stamens. It has purple to rose-purple spotted flowers.



R. decandrum. Photo: Takatu Natsu.

R. quinquefolium (Epithet: leaves in fives)

This 1.2-7.6 m (4-25 ft) high species is only found in Honshu and Shikoku, Japan. It flowers after leaf emergence from early May to mid-June, with flowers that are white, spotted red brown. It is a distinctive species with obovate leaves in a whorl of five clustered at the tops of young shoots, resembling *R. pentaphyllum*



R. quinquefolium. Photo: Hans Eiberg.

except that its leaves are elliptic. *R. quinquefolium* has sometimes been recognized as a member of section *Sciadorhodion* and is similar to two other members of section *Sciadorhodion*, *R. pentaphyllum* and *R. schlippenbachii*, in having five leaves forming a whorl at the tip of the branches. However, both the flowers and leaves of *R. quinque-*

folium emerge from the same mixed



R. dilatatum. Photo: Hank Helm.



R. farrerae. Photo: Hong Kong Herbarium.



R. nudipes. Photo: Hans Eiberg.



R. reticulatum. Photo: Knud Jørgensen.

buds, and for this reason is listed here as a member of section *Brachycalyx* (Jin *et al.* 2010).

R. farrerae (Epithet: after the wife of Capt. Farrer, East India Co., 1829)

This tender deciduous species occurs in China (Hong Kong, Hunan to Fujian) and in southern Honshu, Japan, and is sometimes referred to as “Mrs. Farrer’s rhododendron.” It grows to 0.3-3 m (2-10 ft) high and has pale to deep rose to violet flowers with red purple spots from late March to mid-May. It is rare in cultivation.

R. nudipes (Epithet: naked, referring to the petiole)

This 1.2 m (4 ft) species from Honshu and Shikoku, Japan, has attractive salmon-pink flowers with darker markings, usually in pairs, that appear before the rounded leaves in April. It is a rare but appealing species, but needs some shelter, especially when young.

R. reticulatum (Epithet: netted, referring to the venation)

This 1-3 m (3-10 ft) high Japanese species has deciduous leaves in whorls of 2-3 at the end of the branchlets. Its inflorescence has typically 1-2, rarely 3-4, purple to reddish purple flowers, unspotted or with dark purple blotches, which open before the leaves emerge. Many species from different regions are recognised that are related to this species, but the taxonomy of plants in cultivation is confusing, such as between this species and *R. decandrum*, *R. nudipes*, and *R. wadanum*.

R. wadanum (Epithet: ?)

This species is endemic to Honshu, Japan, and its rich pink to red or white flowers occur from mid- to late May, with the flowers opening before or with the emergence of leaves. It is similar to *R. farrerae* in its three-whorled leaves and 1- or 2-flowered inflorescences, but differs in that its style has glandular trichomes (hairs).

R. weyrichii (Epithet: after Dr. Weyrich, a Russian navel surgeon)

This species from Honshu, Shikoku and Kyushu, Japan, as well as from southern inland Korea, flowers from mid-April to mid-May, with its red, rarely purple or white, flowers opening before or with leaves. Similar to *R. amagianum*, it differs in having young leaves with brown pubescence and sparsely pubescent petioles, whereas *R. amagianum* has petioles and leaf midribs that are densely villose dorsally.



R. wadanum. Photo: Sally Perkins.



R. weyrichii. Photo: Hans Eiberg.

b) Subsection *Tsutsusi* (65 species, 9 described))

These plants represent the evergreen or “Japanese” azaleas. These plants are prostrate to occasionally large shrubs, 0.2-3 m (0.7-10 ft) high. Leaves dimorphic, typically with the spring leaves larger and deciduous while the summer leaves are smaller and evergreen, although there are some species with monomorphic, evergreen leaves. Flowers one or a few come from a terminal bud, with leaves emerging from the lower axils, and multiple buds may create an inflorescence of up to 15 flowers. Corollas may occur in all colours except yellow, and stamens are usually 5-10.

Most of the species are not hardy in northern temperate climates, and thousands of hybrids have been developed over hundreds of years for both houseplants, especially from the tender *R. simsii*, and for the garden to produce floriferous small shrubs. Typical forms of the “pure” species are thus now almost impossible to describe and are seldom found even in large collections. Thus, in the following, as with McQuire and Robinson (2009), only species that can be separated easily by the average person



R. nakaharae. Photo: Hans Eiberg.



R. serpyllifolium. Photo: Hans Eiberg.



R. stenopetalum 'Linearifolium'.
Photo: Glen Jamieson.

or that are especially garden worthy are listed.

i) Species recognisable from the foliage alone

R. nakaharae (Epithet: after G. Nakahara, a Japanese collector)

Native to northern Taiwan, it is a low shrub that grows to 10-60 cm (0.3-2 ft) in height with red flowers in a 1-3 flower inflorescence. The cultivar 'Mount Seven Star' is a slightly stronger growing form with bright brick-red flowers in June and fuzzy-hairy, deep green glossy leaves that densely cover its spreading stems. It is beautiful little ground cover with cold and heat tolerance that is easy to grow in sun or light shade.

R. serpyllifolium (Epithet: with leaves like *Thymus serpyllum*)

This low, 60-90 cm (2-3 ft) high hardy shrub from central and southern Japan has slender, densely brown strigose shoots and deciduous, thin, tiny leaves mostly crowded at the end of short branches. Its mostly single rosy-pink, bright rose-red, or white, small flowers occur in April to May. This is a delightful species in cultivation.

***R. stenopetalum* 'Linearifolium'** (Epithet: linear leaves)

Native to southern Honshu and Shikoku, Japan, and previously called *R. macrosepalum*, this is a low evergreen shrub, with leaves that are 3–5 mm (0.13-0.2 in) wide by 5 cm (2 in) long and pink or lavender-pink flowers. The long and narrow, hairy leaves are matched by the similarly-shaped lavender petals of the flowers in mid-spring, making this an amazing foliage plant. Another *R. stenopetalum* cultivar is 'Kochozoro', similar to the familiar 'Linearifolium' but has normal sized, very fuzzy leaves and the floral petals are quite a bit wider and are an unusual, but very distinct and attractive, creamy-green with a pink stain at the base.



R. mucronatum. Photo: <https://commons.wikimedia.org..>

ii) Species requiring flowers for identification—Stamens 10

R. mucronatum (Epithet: pointed, referring to the calyx lobes)

Native to China, this shrub grows to 1–1.8 m (3-6 ft) in height with evergreen leaves and flowers that are white, pink, or pale red in a 1-3 flower inflorescence. It is slightly fragrant to most people, and is sometimes labelled with the old name "*Azalea ledifolia*".

R. yedoense* var. *poukhanense (Epithet: from Mt. Poukhan-san, Korea)

This 0.6-1.8 m (2-6 ft) Korean shrub, sometime low or prostrate in exposed situations, is a densely branched, compact shrub in shaded areas. Its branchlets have strigose (stiff flat) hairs on new shoots, but these are almost glabrous (without hairs) next season. Its leaves are deciduous in cold climates or semi-deciduous and dimorphic (two different forms, typical of evergreen azaleas) in milder ones. Its inflorescence is terminal with 2-4, rose to pale lilac-purple flowers with flecks, and fragrant, which open with or before leaves.



R. yedoense var. *poukhanense*. Photo: Hans Eiberg.



R. indicum. Photo: Steve Henning.



R. kampfieri. Photo: Hans Eiberg.



R. kiusianum. Photo: Hans Eiberg.

The name *R. yedoense* was given in 1886 to a double-flowering garden cultivated form of a wild Korean azalea. It is unfortunate that the single flowered var. *poukhanense* is treated as a variety of a double-flowered cultivated form.

iii) Species requiring flowers for identification—Stamens 5

R. indicum (Epithet: Indian)

This 0.5-1.8 m (2-6 ft) high shrub from Honshu and Kyushu, Japan, is evergreen or semi-evergreen with small, dimorphic leaves. Its inflorescence has 1-2, 3.5-5 cm (1.4-2 in) bright red to scarlet flowers in June-July. It is used to make late-flowering red hybrids, and cultivated forms, some of which may be hybrids, include 'Balsaminiflorum' (double salmon-red flowers), 'Crispiflorum' (deep rose or red flowers with frilled petals) and 'Variegatum' (flowers striped red and white).

R. kampfieri (Epithet: after E. Kaempfer, who wrote about Japanese plants around 1700)

This 30 cm-3 m (1-10 ft) Japanese shrub is evergreen or semi-evergreen with small, dimorphic leaves. Its inflorescence has 2-4, 2.6-3.8 cm (1-1.5 in) salmon red, brick-red or some other shade of red flowers in May-June. Flowers are larger than those of *R. kiusianum* and there are many hybrids cultivated with pink, purple, red or white flowers.

R. kiusianum (Epithet: from Kyusu, Japan)

This is a low (0.3-1 m, 1-3 ft), hardy, dense, many branched, often prostrate, hardy Japanese shrub from Kyusu. Its inflorescence has 2-3, 1.5-2 cm (0.6-0.8 in), rose-purple, red, pink or white flowers in May-June. It is evergreen or semi-evergreen with small, dimorphic leaves.

R. x 'Obtusum' 'Amoenum' (Epithet: blunt)

This low shrub to one m (3 ft) is a long cultivated and beautiful old Japanese hybrid with bits of *R. kiusianum* and *R. kampfieri* and who knows what else in its genes. Vivid magenta flowers in a 1-3 flower inflorescence in mid-spring on a dense-growing evergreen azalea that in time develops into a wider than high specimen. It is easily grown, tough and hardy. It has both small flowers and leaves in comparison to most modern hybrids, but is very floriferous.



R. x 'Obtusum' 'Amoenum'. Photo: Missouri Botanical Garden.

iv) Other species

R. simsii (Epithet: after J. Sims, first editor of "Magazine Botanique")

Native to East Asia, where it grows at altitudes of 500–2700 m (1640-8860 ft), this very tender species is common in Hong Kong but also occurs in areas south of the Yangtze River in China, as well as in Vietnam and Thailand. Many hybrids over hundreds of years have been developed from this species for azalea houseplants.

C. Subgenus *Choniastrum* (11 species, 3 described)

This subgenus was previously a section of subgenus *Azaleastrum* but its species are now recognised as distinct from those in the other sections of *Azaleastrum*. Inflorescences have 1-8 flowers and are axillary in the top 1-3 leaves. The bark is often smooth, young growth tinged red, the calyx minute, the flowers tubular or funnel-shaped, and with 10 stamens.

R. hancockii (Epithet: after W. Hancock, Chinese Imperial Customs)

This 1-4.5 m (3-15 ft) evergreen species is native to Yunnan, China, with a one flower inflorescence axillary in the uppermost 1-3 leaves. Two to three inch, widely funnel-shaped



R. simsii. Photo: Hans Eiberg.

flowers are fragrant white with a basal yellowish blotch, sometimes pink, with flowering in May. It is hardy to about -12° C (10° F).

R. latoucheae (Epithet: after Madame de la Touche, collector in Fujian, China)

This 1-3 m (3-10 ft) high evergreen species from Guangdong, Jiangxi and Zhejiang, China, has one flower inflorescences auxiliary in the uppermost 1-3 leaves. Flowers are widely funnel-shaped with a short tube, 3.5-4.3 cm (1.5-1.8 in) long, are fragrant and are pink or purplish. It flowers in April-May, is hardy to about -12° C (10° F), and although rare in cultivation, may be mislabelled as *R. wilsonae*.

R. moulmainense (Epithet: from Moulmein, Burma)

This 1-12 m (3-40 ft) evergreen shrub or small tree is native to E India, Myanmar, Cambodia, Malaysia, Southern China, Taiwan and Japan (Okinawa), from 400-3650 m (1300-12,000 ft) elevation, and is quite a variable species. Its leaves are 4-13 cm long, elliptical and leathery, with a curvy margin rolling backward toward the underside. The flowers are fragrant, and are borne on top of the branches in an umbel inflorescence in groups of two to four. Petals are white or pink, with their inner part spotted orange. It flowers from April to May and is hardy to about -12° C (10° F).

R. stamineum (Epithet: with prominent stamens)

This distinctive but somewhat tender 1-10 m (3-33 ft) high species from Yunnan, Sichuan, and east to Guangxi has 2-8 flowers in an inflorescence axillary in the uppermost 1-3 leaves. Its white or rose, narrow, tubular-funnel-shaped flowers with a yellow blotch are up to 3.7 cm (1.5 in) long, and it is distinguished by stamens much longer than the corolla. It flowers in April-May and is hardy to about -12° C (10° F).

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R. hancockii. Photo: Chris Klapwijk.



R. latoucheae. Photo: Steve Hootman.



R. moulmainense. Photo: Chris Klapwijk.



R. stamineum. Photo: Maurie Kupsch.

Recognizing an Inheritance: the Kentville Rhododendron Legacy

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“Much remains to be done to encourage interest in the planting and care of trees, shrubs, and flowering plants so necessary to the happiness

and culture of all people.” William Saxby Blair in the forward to *“Green Thumbs The Canadian Garden Book”* (Fillmore 1953).

The June 2021 ARS conference will take place “down east,” and will be hosted by the Atlantic Rhododendron and Horticultural Society. In Craig (2005), *“Fifty Years of Testing and Breeding Rhododendrons in Nova Scotia,”* plant scientist Dr. Don Craig described this part of “down east” as “a 544 km long, 80 km wide (310 x 50 mile) peninsula between the 43rd and 47th degree north latitudes, surrounded by the Atlantic Ocean and barely joined to New Brunswick and the continent by a narrow isthmus.”

Now threatened by rising sea levels and climate change, the peninsula known as Nova Scotia is in Mi'kma'ki, the traditional and unceded territory of the indigenous Mi'kmaq (Mikmawey Debert Cultural Centre), here since the last glacier retreated twenty thousand years ago. It was “Acadie” to the French who—having established trade and social relations with the Mi'kmaq on their arrival in 1604—moved in with the Mi'maw until the British physically evicted and dispersed the Acadians in 1755, many to then French Louisiana.

The name of our conference base, “The Old Orchard Inn,” bespeaks the horticultural history of its location in what Craig described as the agriculturally rich Annapolis Valley, —approximately 100 km (60 miles) long and 16 km (ten miles) wide. The south and north mountains running west to east maintain the Valley's unique climate, creating habitat where tree fruits, berry crops, and ornamental plants thrive, and the Bay of Fundy, 16 km (ten miles) to the north modifies the climate. Halifax, the provincial capital, is 107 km (66 miles) east of Kentville on the Atlantic coast and has quite a different climate.

Craig described the plant hardiness variations across Nova Scotia: “The Valley is in Plant Hardiness Zone 5b, the extreme western end of Nova Scotia and much of the coast is Zone 6a, the southern coastal area is 6b (with a few parts perhaps even 7a or better) and the interior is 5a. The climate is strictly maritime—snow, rain, wind, frost and moderate temperatures which can shift rapidly in winter. The Valley is considerably hotter and drier than the province's coastal areas but can boast good deep soil.”

Dr. Craig worked in the Valley as a small fruit breeder in the Kentville Experimental Farm Crops Division, which included ornamentals, starting in 1947. Why did he consider rhododendrons? Well, In 1952, Craig was back at Kentville after doing graduate work in plant breeding at the University of New Hampshire. While there, he'd been “enthused about rhododendrons” by plant scientist Radcliffe Pike.

“In the beginning,” Craig wrote, “there were no plans to do anything more than make the vista more presentable when approaching the Kentville Research Station building complex. The approach to this view was over a pond and its large weeping willow. The banking behind the pond faces north forming a semi-amphitheater some 30 m (100 ft) high and 120 m (400 ft) long. The banking was a mess of brambles and weed trees which when removed, brought order out of chaos. The only gem was an old but small planting of iron-clad rhododendrons (probably planted around 1920). They had grown well, so the obvious thing was to plant more. Thus, the search for more plant material and knowledge began, starting from “scratch.”

[Editor's note: With respect to the term “iron-clads”, after many years of observing these plants growing at the Arnold Arboretum, Harvard University, Boston, and with consultation with nurserymen also growing them, E.H. Wilson in 1917 published a list of “Ironclad Rhododendrons.” The original list consisted of fourteen cultivars, and the term “Ironclad” referred to their ability to withstand severe winter conditions. In 1927 the list was shortened to twelve and became known as “Wilson's Dozen” or “the ironclads”.]

At the time, “scratch” had a lot going for it. Those ironclads were likely planted by the first Kentville superintendent William Saxby Blair. According to Craig, Blair “had a love for ornamentals as well as superior skill in landscaping. From the rough



Dr. Don Craig with awards. Photographer unknown.



Farm Pond Bank in 1911. Photo: courtesy Debra Oxby, AAFC.



"Farm Pond Bank" plantings in 1964. Photo: courtesy Debra Oxby, AAFC.

of hills, hollows, and stumps [he] fashioned a beautiful park-like setting for the Station." In Ottawa and at federal Research Stations across the country, there was an Ornamentals Group. The idea of beautifying the farmhouse site and the suburban home lot had both economic and aesthetic value. The institutional culture was auspicious.

And seven km (4.5 miles) away in Centreville, nurseryman Roscoe Fillmore was propagating and promoting rhododendrons and azaleas. Fillmore was Head Gardener from 1938-54 at the Dominion and Atlantic Railway's Memorial Park at the village of Grand Pré commemorating the forceful 1755 Expulsion of the Acadians at the village of Grand Pré. He devoted three out of twenty-seven chapters to the genus *Rhododendron* in his 1953 book, *Green Thumbs The Canadian Garden Book*. In the forward to the book, William Saxby Blair wrote "Much remains to be done to encourage interest in the planting and care of trees, shrubs, and flowering plants so necessary to the happiness and culture of all people." From 1952 onwards, Craig would be doing much 'to encourage interest' in rhododendrons.

Rhododendrons For Down East Canadian Gardens

The purpose of Craig's "search" was to identify and develop species and varieties that would thrive in eastern Canadian gardens. Starting with cuttings from the ironclads on site and species plants (*R. calendulaceum*, *R. vaseyi*, and *R. schlippenbachii*) purchased from the Fillmore Nursery, Craig over time obtained cuttings, seeds, and plants through a network of European, American, and Canadian breeders and gardeners.

From 1957-67, Agriculture Canada researcher George Swain became the driving force for the work. The Craig-Swain collaboration ultimately resulted in the selection of fourteen new cultivars as garden-worthy for the region (Craig



George Swain in lath house. Photo: Dick Steele.



Captain Richard 'Dick' Steele. Photo: Wendy LeBlanc.



R. fortunei seedlings in 1964. Photo: Dick Steele.



'Nova Sunrise'. Photo: John Weagle.

2005). The fifteenth and last Kentville cultivar release was in 1988—a cream flowered hybrid named “G.S. Swain”. Several of the names reference the “la Grande Dérangement” (Expulsion) of Acadian families, whose members were separated and shipped out from Grand Pré (Hodson 2012). Their story came to public attention in North America almost one hundred years later when Henry Wadsworth Longfellow’s narrative poem about Evangeline and Gabriel was published as “A Tale of Acadie” in 1847. The poem follows an Acadian girl named Evangeline and her search for her lost love Gabriel, following the tragic Expulsion of the Acadians.

Also very much engaged in the work at Kentville was Richard Steele, known as Dick, Captain Steele, or “The Captain.” Steele was a well-known amateur plant breeder recognized by Craig as “Canada’s foremost rhododendron and azalea authority.” He remarked, “[Steele] has given his talents and knowledge ... through the regional and national societies ... public speaking, radio, TV, the media ... [and] encouraged and assisted the breeding program with planting material, pollen, knowledge, and advice.” Dick Steele’s file of his 1968-92 correspondence from Craig illustrates how the two of them fed each other’s enthusiasm.

[Editor’s note: Captain Steele received the ARS Gold Medal in 1998!]

On the Farm Pond Bank, “the plantings,” as Craig referred to them, became an annual attraction when the second Sunday in June became known as Rhododendron Sunday. The “search” at the Station stopped when Craig retired in 1983, and Agriculture Canada closed the Ornamentals Group in the 1990s. Craig wrote, “Surely from among the many cultivars from Delp, Leach, and others, there are new rhododendrons to more than satisfy most gardeners.” But Craig couldn’t stop, and he continued to hybridize in his retirement. Building on earlier attempts at Kentville to create a hardy yellow-flowering cultivar, ‘Nova Sunrise’ was introduced in 1983, and the plantings at Kentville have continued to grow and bloom. “However now,” says the current Greenhouse/Grounds Operation Manager Mike Pulsifer, “the peak bloom time is much more variable from one year to the next; in 2020, [it was] a week or so early for some and the blooms did not seem to hang on as long as usual.”

Out In The World

Donald Craig wanted “to share the good news [about rhododendron culture], and spread rhododendrons further into our northern climate.” Between 1969 and 1982, he sent Kentville rhododendron and azalea cultivars to 18 different recipients in

the Canadian provinces of Nova Scotia, New Brunswick, Prince Edward Island, Quebec, Ontario, Newfoundland; and to Germany. He also depended on Captain Steele to promote the Kentville work at every opportunity.

In 1972, Craig was a founding director of the Rhododendron Society of Canada (RSC), with Ontario breeder Leslie Hancock as president. In 1976, Craig and Steele were among the co-founders of the RSC Atlantic Region (RSCAR) chapter. Enthusiasts came together to share knowledge and plants, and to promote public interest in the genus *Rhododendron* through shows, sales, and seed exchanges. W.S. Blair surely would



Ontario and Nova Scotia members of the RSC on Rhododendron Sunday in 1979. (Photographer unknown.)

have been pleased with this approach “to encourage interest” and its subsequent success in being the glue for a regional community of gardeners and plant lovers.

In the early 1990s, my husband Stephen Archibald and I knew very little about rhododendrons when Walter Ostrom told us to join the RSCAR. We went to meetings and looked at colourful slides of plants, mostly rhododendrons. We heard botanical names, but had no idea how to spell them or what they meant. We listened in that darkened auditorium as the knowledgeable few questioned and commented about hardiness, habit, crosses. None of it made much sense to either of us, and we couldn't imagine having plants big enough to cut trusses for a show, but we were nevertheless charmed. In addition, we were able to buy rhododendrons and other small trees and shrubs at low cost, so we could buy two of each on the premise that a few might do well!. Thus we became a growing number of younger-generation gardeners joining “The Club.”

The unanticipated construction of a new septic field on our property in 2016 and the need to uproot 35 rhododendrons and countless perennials made it obvious that much time had passed since the 1990s. A number of our rhodos were now 20 -30 years old and BIG, well beyond the estimated ten-year size given in the descriptions for plants being offered through the club's tissue culture fall plant order and May Sale. They would be replanted in due course, but in changed conditions, on the new field. The planting plan, as it turned out, required consideration not only of their physical attributes but their respective associations with people —some, like Craig and Steele, had now passed. I was aware, too, that I was no longer in the “younger generation.”

Those plants embodied the social and educational benefits and pleasures we'd enjoyed because of RSCAR and the non-profit entity I worked to co-found in 2003, the Atlantic Rhododendron and Horticultural Society (ARHS). This included being in the crew organized in 2006 by fellow member Chris Hopgood to do some clean-up among the rhododendrons at the Kentville Research Station. After dispatching seedling maples and thuggy leucothoes, the reward was a visit to Dr. Craig at nearby Sunnybrook Farm, where he continued to breed rhodos and take pleasure in the gardens he established in retirement. On that visit and a subsequent one arranged for ARHS members, Dr. Craig took joy in showing us his plant records and the somewhat formal garden chock full of rhodies, azaleas, and evergreens.

Those trauma-fueled reflections led to the proposal in 2017, approved by my fellow ARHS members, to spend money on an outdoor interpretation project at Kentville. The rationale was something like this:

- There's nothing at the site to say how the rhododendrons got there. What's the story?
- ARHS has its roots at that site. We owe it to the co-founders of our origin group RSCAR to celebrate and honour



John Weagle at Sunnybrook Farm. Photo: Sue Gunn.



Elepidote prizewinners in the 1982 RSCAR truss competition. Photo: John Weagle.



'Bellefontaine'. Photo: Unknown.



'Minas Grand Pré'. Photo: John Weagle.

their enthusiasm and work.

- The time to do it is now, while some of us are still cognizant!
- We would be creating an asset for garden tourism in Nova Scotia.
- We had the money and could afford the design and production costs.
- As a former Nova Scotia Museum educator and heritage interpreter, and with the back-up of my co-gardener Stephen Archibald, who was even more experienced in museum exhibitry and interpretation, I was willing and interested to take on the research, writing, and production of explanatory signs as a volunteer.

With the go-ahead from the Research Centre at Kentville, we were underway. While Craig's (2005) article "Fifty Years of Testing and Breeding Rhododendrons in Nova Scotia" was a cornerstone reference, two separate caches of marvelous material surfaced to inform and support that story:

1. A file of correspondence from Don Craig to Dick Steele, 1968-1992, with slides taken at Kentville by Steele.
2. The Barbara Hall papers, including black and white photos, posters, newspaper clippings, and correspondence re RSCAR and RSC from 1976 to 1983. One-time RSCAR president, Barbara Hall and her husband, Dr. Kenneth Hall, were neighbours of Dick Steele on Hall's Rd, Halifax, before Captain Steele moved to Lunenburg County.

A third and invaluable source has been Halifax plantsman and hybridizer John Weagle. Locally and internationally active on the rhododendron scene since the early 1970s, he and Craig collaborated to produce digital master breeding records and a searchable database for the breeding programs at both Kentville and Sunny Brook Farm. Through his work for a wholesale horticultural company in Halifax and a nursery in British Columbia, he was the major reason that the RSCAR and ARHS plant sales offered members and the public the opportunity to access the great array of rhodos and companion plants in the trade, like the Leach and Delp cultivars referred to by Craig. The irony is that the Kentville selections have rarely been in the trade.



Kentville cultivars planted in 1975 in Truro, Nova Scotia, zone 5b. Photo courtesy of Karen Smith.



Kentville cultivars in 2018, Fredericton, New Brunswick, zone 5b. Photo courtesy of Garth Nickerson.



Panel installation in Kentville, with Mike Pulsifer, Sheila Stevenson and Debra Oxbey.

It was only through the enterprise of Weagle and his partner Ken Shannik that rooted cuttings of Kentville cultivars like “Minas Grand Pré” and “Bellefontaine” occasionally have been available.

The first time I saw ‘Minas Grand Pré’ was on a friend’s Halifax property once owned by botanist Joe Harvey, now living in Victoria, BC. I was enchanted and covetous of that plant. In our own garden now, every year in late May I am excited to see the breaking buds of ‘Minas Grand Pré’ in their taffeta-esque rich pink, and every day I am pleased to see Rad Pike’s towering “Bellefontaine”, knowing it is the offspring of “the hardiest and best *R. fortunei* specimen” known by Pike who, according to

Craig, crossed it “with a superior selection of *R. smirnowii*,” in its second generation from Edinburgh Botanic Gardens plants in the Reeve Point Gardens .

So this is the Kentville story, presented on three 0.8 x 1.9 m (32 X 76 inch) panels on the Kentville site. Designed by Grant Murray Design and fabricated from 0.64 cm (1/4”) aluminum by Atlantex Creative Works, the panels recognize and celebrate in year-round colour this place and the people who did so much to encourage interest in rhododendrons and to bring happiness to gardeners “down east”.

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Sheila Stevenson is currently a director and past president of ARHS and the ARS Chapter RSC Atlantic Region.

Gardening is cheaper than therapy ... and you get tomatoes.
- Empress of Dirt

Rhododendron caucasicum Survey in Armenia for Conservation of the Species and its Habitats

Anna Asatryan

Yerevan, Armenia



Rhododendron caucasicum Pall. is the only rhododendron species found in Armenia and is one of the most beautiful representatives of the country's flora. It is an evergreen shrub up to 50 cm (20 in) high that blooms in late May-June with large, white or creamy, rarely pinkish flowers 5 cm (2 in) in diameter in an inflorescence. Its geographical distribution is the Caucasus Ecoregion—one of the world's biodiversity hotspots. The species is mostly found in the subalpine belt of the Greater and Lesser Caucasus Ranges, which encompasses the south of the Russian Federation, Georgia, Armenia, Azerbaijan and the north-east of Turkey. Armenia represents the south-

eastern edge of the species distribution and here the Caucasian rhododendron doesn't form large and dense communities like in the north-western parts of its area, but occurs in small groups and sparse thickets. It is a rare species in Armenia and is included in Armenia's Red Data list of endangered species. *R. caucasicum* occupies high mountain areas, which are characterized by the absence of traces of ancient glaciation, so it is considered a relict species of the Armenian flora. Other species associated with this rhododendron are *Vaccinium myrtillus*, *Gentiana pontica*, *Carex tristis*, *Daphne glomerata*, *Allium victorialis*, *Anemone fasciculata* and others.

R. caucasicum in Armenia was found for the first time in 1920. Later, in a period up to 2013, fieldtrips made by different researchers found some other sites for the species and revisited some known ones—all in the north of the country. Most of the findings are dated from the 1920s to 1950s, but a majority of the sites were never visited again after they were discovered. The lack of information on the species' distribution and the threats and state of its populations thus created challenges in evaluation of the species' conservation status, as well as in the protection and monitoring of its populations. The main obstacle in obtaining actual data on the species was difficult access to the sites, and that for many, no previous geographical coordinates were available.

An area of 1000 hectares (3.86 sq. miles) in the Pambak mountains was established as a protected area (state sanctuary) in 1958 for conservation of rhododendron thickets, and this has been the most known and visited site for the species in Armenia. For all the other rhododendron locations mentioned in the literature or in herbarium material (except one in the Gugurats Mountains—a recent finding), there was a lack of information as most of them have not been visited again since their discovery in 1920-40s.

So, clarification of *R. caucasicum*'s distribution in Armenia was considered necessary to obtain a better understanding of the species' current distribution and its habitats in Armenia to ensure its protection, and to allow for future monitoring of its populations. This project is thus the first focused study of *R. caucasicum* in Armenia.

The project's four objectives were 1) to visit all the known locations of *R. caucasicum* in Armenia that were mentioned in the literature and/or herbariums to check for the presence/absence of the species there, 2) to collect data on *R. caucasicum*'s distribution, condition of the populations and threats, 3) to map *R. caucasicum*'s distribution in Armenia and 4) to prepare materials for publication and to share the project results to promote conservation of the species and its habitats.

Methods and Materials.

The fieldwork period was chosen to be in August-October when the flowers are gone and the meadow grass was dry, making it easy to distinguish evergreen rhododendrons even at a distance. The season was perfect also for driving an off-road vehicle in the mountains. We spent 20 days in the field over the seven months of the study, which went from Aug 1, 2019 to Feb 29, 2020. Including travel to the target sites from and to Yerevan, the following was the monthly distribution of fieldwork: 20% in August, 40% in September, and 40% in October, 2019.

Preparation for the fieldwork was done during the first month of the project and included the following activities: literature and herbarium studies, collection of any information on possible locations of the target species through interviews with colleagues—botanists and zoologists, hiking guides and local villagers who live in the areas of interest. My previous research on



Fig. 1. *R. caucasicum* truss.



Fig. 2. Kristina Ananyan recording GPS data at a new location of *R. caucasicum* in the Pambak Mountains.

found, all in the north of the country.

Herbarium material, which was located at the Institute of Botany, after A. Takhtajyan, National Academy of Sciences, ERE) was available only from the Bazum, Pambak and Gugarats Mountains: nine of 13 samples were collected from the Pambak Mountains, two specimens represented the first collection in Armenia in 1920-22 from the Bazum Mountains, and two specimens represented the species in the Gugarats Mountains. The majority of the collections were from the first half of the 20th century, and their labels contained only general information on the specific site locations.

The distribution of *R. caucasicum* in Armenia is fragmented and according to the literary and herbarium data, includes sites on the following mountain ranges: Bazum, Bovaqar (Halab), Pambak, Tsaghkunyants, Javakhq and Gugarats (Fig. 3).

I marked with green only the sites where we confirmed the species by reaching them physically. All others are those where the presence of the species was confirmed due to distant observations and satellite map studies and those where we didn't find the species, are marked with red.

the history of *R. caucasicum* discoveries in Armenia was used in field trip planning.

Where possible, local jeeps with local drivers were hired for field work. Botanical postcards with *R. caucasicum* and photographs of the species and its habitats were used as supportive material when interviewing locals. Inaccessible places were surveyed using binoculars, online satellite images (Google maps, Yandex maps), which were particularly useful to clarify the species distribution in the remote areas that we were unable to reach. In the field, we collected GPS data which was used in the mapping of the distributional area of *R. caucasicum*.

R. caucasicum was recorded for the first time in Armenia in 1920 by A. Shelkovnikov from two close locations: Mt. Bazumtar (Todor, site 1 on the map) and Mt. Urasar (site 2). Later, in a period up to 2013, around 20 fieldtrips were conducted, during which some other sites for the species were

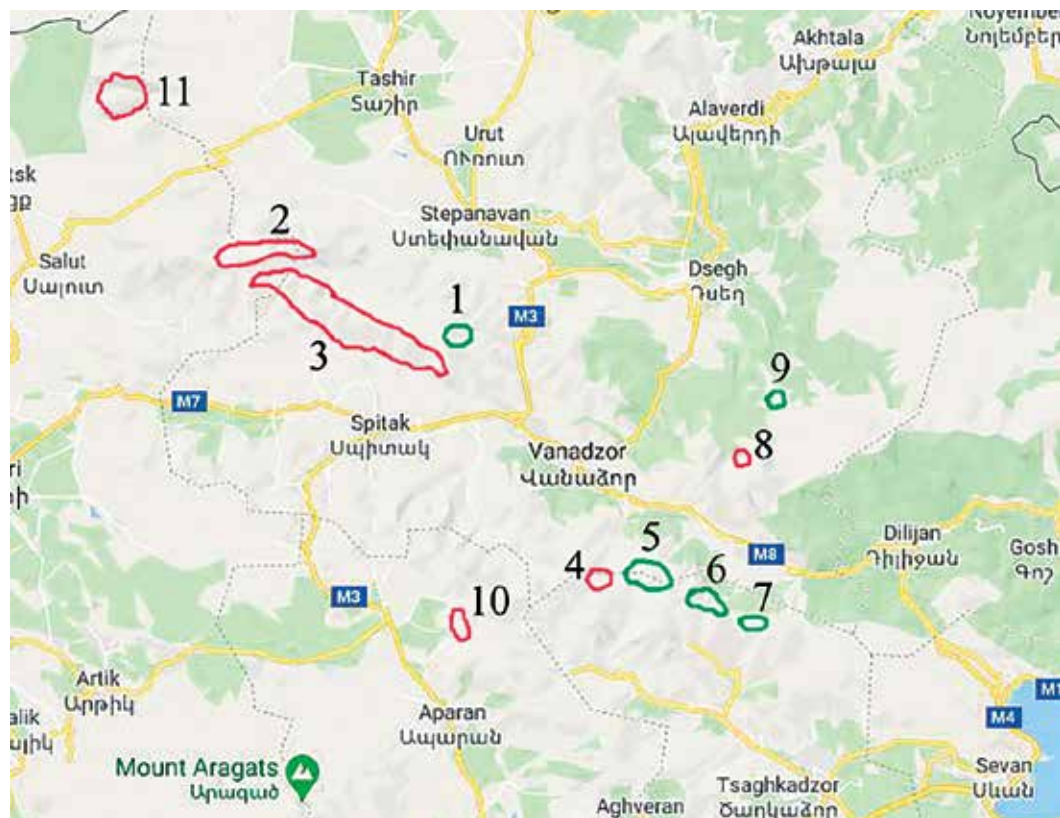


Fig. 3. *R. caucasicum*'s distribution in Armenia. Green areas = presence physically confirmed; red areas = presence not physically confirmed.

A. Bazum Mountain Range (Sites 1, 2, and 3 in Fig. 3)

This mountain range has a length of 66 km (41 miles), with the highest peak being Mt. Urasar (2992 m, 9816 ft).

a) **Site 1.** Mt. Bazumtar (Todor), 2796 m (9173 ft). *R. caucasicum* was first collected in Armenia from here in 1920, with no other visits since then. The herbarium sample is available. After 99 years, we confirmed the continued presence of the species at this location. The hiking route to the location was about 16 km (ten miles) long and included going over a number of peaks on Pushkin Pass. The lowest locality of rhododendrons in the pass was at 2243 m (7358 ft), and it reaches the top of Mt. Bazumtar.



Fig. 4. The habitat of *R. caucasicum* on Mt. Bazumtar (Todor), Sept. 21, 2019.



Fig. 5. Anush Nersesyan photographing the first rhododendron specimens found at site 5.

- b) **Site 2.** *R. caucasicum* was collected from Mt. Urasar at 2992 m (9816 ft) in 1920, with no return visits since then. Unfortunately, our attempt to reach the site from the north was unsuccessful—the mountain road we were using was washed out. Interviews with locals didn't help as no one knew the route to the plant's exact location. Satellite images, however, confirmed the presence of the species in this site.
- c) **Site 3.** The presence of *R. caucasicum* at this site was noted for the first time in 1947, and in the literature there are references to large territories on the northern slopes of the Bazum Mountains where the species occurs. Fortunately for the species' conservation, but unfortunately for us, this is a remote area far from settlements and mostly inaccessible by vehicle. Research expeditions to the rhododendron populations in the Bazum Mountains require and long-distance trekking and should involve a professional mountain guide.

Using binoculars, we could see the far eastern extremity of the rhododendron population from Site 1, but it was too difficult to reach by foot with our resources. The territory of the range was studied using online satellite maps and the presence of *R. caucasicum* there was obvious, and it is found mostly in the gorges on the northern slopes.

B. Pambak Mountain Range (Sites 4, 5, 6, and 7)

This mountain range is about 106 km (65 miles) long, with the highest peak being Mt. Tezhler at 3101 m (10,174 ft).

- a) **Site 4.** According to the literature, *R. caucasicum* on Mt. Maymekh was first found in the 1930s (no exact year is known), with the presence of the species there confirmed in 1936. The herbarium specimen was not available and there was no information on the exact location of the species. Our visit to the mountain was inconclusive because of the large area involved and difficult terrain, which would require much more time to study well than was available. Satellite images showed no large visible communities of the species, so probably it is found in isolated areas with scattered specimens or small groupings.
- b) **Site 5.** This is a new location for *R. caucasicum* in Armenia as we didn't find any references to this site in the literature and no previous herbarium collections for it exist. It includes a meadow area above forest and rocky/scree slopes, mostly of northern and north-eastern exposure. The first specimens of *R. caucasicum* appeared on 2598 m (8523 ft) and the shrubs extended up to about 3000 m (9842 ft). There were very dense communities which occurred on steep and rocky slopes (up to 40-45 degrees). At the lower altitudes in meadows, sparse bushes and single specimens were found. The condition of the population is good and no particular threats were identified. There were no signs of grazing, and hay meadows were located at lower elevations where rhododendrons are not found.
- c) **Site 6.** This area includes the Rhododendron State Sanctuary and is the most visited location of the species in Armenia. Herbarium material from here is available. The lowest limit of distribution of *R. caucasicum* is recorded at 2250 m (7381 ft) in a subalpine crooked-stem forest formed with *Betula litwinovii*, *Acer trautvetteri*, *Sorbus aucuparia*, *Salix caprea*, etc. At an elevation of about 2350-2400 m (7710-7875 ft), larger clumps of rhododendron were observed in gorges, where the humidity is higher and snow stays longer. Rhododendron here occurred up to 2700 m (8860 ft).
- d) **Site 7.** According to the literature, rhododendrons were found here in 1931, with the site revisited again in 1953; herbarium material is available. We confirmed the presence of the species there, and the character of *R. caucasicum* communities here is similar to that at site 6—separate individuals and more or less large “rhododendron groupings” above the forest line. Their abundance is substantial.

C. Bovaqar (Halab) Mountain Range (Site 8)

The length of this smaller range is 36 km (22 miles), with the highest point being Mt. Bovaqar at 3016 m (9895 ft).

We attempted to hike the Bovaqar Mountain Range in order to find the rhododendron population once found in 1947 and later confirmed in 1987. We needed to walk up for 4-5 hours, which required a whole day to reach the destination, but unfortunately, a sudden weather change forced us to stop the hike at the half-way point and turn back. We were thus unable to confirm the continued presence and condition of *R. caucasicum* in this range.

D. Gugarats Mountain Range (Site 9)

This mountain range is approximately 80 km (50 miles) long, and the highest peak is Mt. Dzarsar at 2244 m (7362 ft).

R. caucasicum was found here in 2009 by our team member Anush Nersesyan, and the herbarium material is available. Revisited, the presence of the species was confirmed, it being in a meadow with a few scattered plants.

E. Tsaghkunyats Mountain Range (Site 10)

This short mountain range is 42 km (26 mi) long, with the highest peak being Mt. Teghenis at 2846 m (8337 ft). *R. caucasicum* was found here in 1945 and there have been no any other visits here since then, and no herbarium material is available. This location is a comparatively dry one, representing the south-eastern limit of the species' distribution both in Armenia and in general. Unfortunately, we didn't find this rhododendron here. We assume that if it is still here, then it should only be a few specimens. Having limited time and resources and not having precise geographical coordinates made it hard to study carefully the area where the species supposedly was found 75 years ago. Anthropogenic pressure all over this area is high and it may be that *R. caucasicum* has disappeared from this location.

F. Javakhq Mountain Range or "Wet Mountains" (Site 11)

This mountain range is more than 100 km (60 mi) long, with the highest peak being Mt. Abul in Georgia at 3301m (10,830 ft). *R. caucasicum* was collected from this mountain range in 1935 and we had only a general description of the location without any specific details, and no herbarium material available. We made two attempts to find the population of *R. caucasicum* on this mountain range, after first interviewing local villagers in order to obtain any useful details to help us to use our time and resources effectively, but unfortunately we couldn't get any useful information. Exploration of some areas from the eastern and western sides didn't bring any results. On the third day, we met a local person who suggested we try a hike from the south, but we could not do this at this time as because of time and resources limitations. However, satellite images show the presence of the species here. This is known as the only location of this rhododendron in Armenia which is not associated with forests.

Difficulties in Surveying

The almost complete lack of geographical coordinates of the rhododendron locations, remote areas with only a few mountain roads (not always good), and difficulties in finding suitable local drivers all made the survey route planning and logistics difficult. It was found that most of the areas of interest required a long hike and were only reachable by foot.

Bad stormy weather disrupted our plans in three of the available fieldwork days, making it dangerous to drive and walk in



Fig. 6. At the beginning of the hike towards *R. caucasicum*'s location in the Bovaqar mountains.



Fig. 7. The author (left) and Anush Nersesyan, 8 km (5 miles) up on their hike to the Pushkin Pass. Rhododendrons were waiting for them on the top behind



Fig. 8. *R. caucasicum* thickets on a scree slope in the Pambak Mountain Range.



Fig. 9. *R. caucasicum* habitat at Margahovit, Pambak Mountains.

the mountains.

R. caucasicum prefers steep rocky slopes and often it was hard to walk around the whole observed population to measure its size. We used binoculars and satellite images to fulfill gaps in determining the best picture of the species' distributional area.

Results and Conclusions

For the first time in Armenia, a focused study of the Red Data book listed *Rhododendron caucasicum* and its habitats was carried out and its distribution map prepared. Field trips towards the known locations of *R. caucasicum* in Armenia were conducted and the species' presence was confirmed by our visits in four of the 10 sites (sites 1, 6, 7, 9—marked with green on the map) known from herbarium collections and the literature. Especially remarkable was our “rediscovery” of *R. caucasicum* on Bazumtar (Todor) Mountain, site 1, from which the species was collected for the first time in Armenia in 1920.

One new location for the species was found on the Pambak Mountain Range (site 5). It is not mentioned in any literary source and no herbarium material is available from this location. For three other sites (2, 3, 11), the presence of *R. caucasicum* was confirmed by distant observation with binoculars and online satellite maps data.

The total area in which *R. caucasicum* occurs in Armenia by our rough estimations is about 4000 ha (9885 acres), with more or less solid thickets in about a quarter of that area. For more accurate data, further detailed studies will be needed.

Rhododendron thickets in Armenia predominantly occupy the northern slopes of the above listed sites at elevations from 2100 to 3044 m (6890 to 9990 ft) and in some of the locations they are rather dense up to the upper elevation limits. Previously, the upper elevation limit of comparatively dense rhododendron thickets was considered at about 2600 m (8530 ft). The species prefers gorges, screes and stone runs, where there may be less competition by other species and where winter snow persists longer, ensuring a higher humidity. Rhododendron thickets play an important role in fixing scree and in soil-forming processes. Thanks to rooted creeping shoots, one rhododendron bush can reach a size of up to 3 m (10 ft) in diameter. In some places, particularly in gorges and on scree, the rhododendron forms solid dense thickets, which can occupy an area of up to 500-600 m² (600-720 yards²).

Variability in *R. caucasicum*'s flower color was known, but our field observations revealed variability in the shrub size, fruit size, leaf color etc. For example, the specimens from Pambak Mountain Range were larger and robust, up to 50 cm (20 in) high, while the specimens from the Bazum Mountains were much shorter (up to 20-25 cm (8-10 in) high). Future studies on the Caucasian rhododendron variability might be interesting in its relation to climate change adaptations and other factors. The studies on variability may be of interest also from a taxonomic point of view as Armenian populations represent the edge of the species' distribution.

Seeds of *R. caucasicum* were collected from the populations at Bazumtar (Site 1) and near Margahovit (Site 6) and have been processed and stored in the Seed Bank of Armenian Flora at the Institute of Botany after A. Takhtajyan, National Academy of Sciences, for long term ex-situ conservation in the living collections in the Yerevan botanical garden. Herbarium samples collected on the trip were deposited in the Institute of Botany (ERE).

This project has allowed clarification of the condition of the species in Armenia and the threats facing it. Fortunately, most of its habitats are located in remote areas with an absence or very low level of human impact. *R. caucasicum* is often found on steep, rocky slopes and screes, where it well protected from any anthropogenic influence. The only exception is the location near the village of Margahovit (site 6), which is affected by overgrazing. Slope terracing because of cattle trampling increases soil erosion and fragmentation of the more or less large rhododendron clumps, and likely disturbs natural reproduction of the species. Climate change, i.e., future habitat warming, may be considered the main threat to the species in Armenia, as its



Fig. 10. Seedlings of *R. caucasicum* in the Pambak Mountain Range.



Fig. 11. The author and Anush Nersesyan next to a *R. caucasicum* population in the Pushkin Pass.

survival is in direct correlation with the stable snow cover, humidity and low temperatures

This project's results will be useful in further conservation planning and monitoring of the populations of *R. caucasicum* in Armenia, as well as providing useful data in the reassessment of the species status in the upcoming new edition of the Red Data book of Armenia, planned for 2020-21.

It is important to continue this research on *R. caucasicum* in Armenia. First of all, future work should access sites 2, 3, 8 and 11 in order to fulfill the data gap and make the general picture on the species in Armenia more complete. Detailed descriptions of rhododendron habitats, including inventory of the habitats' flora, need also to be done, as there are a number of other threatened companion species such as *Fritillaria collina*, *Primula amoena* and others, which makes these ecosystems very valuable and of high importance for conservation.

Acknowledgements

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The philosopher who said 'work well done never needs doing over' never weeded a garden. Or cleaned a house, or ...

~ Empress of Dirt

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The names of species and hybrid rhododendrons and azaleas occurring within the text of articles are not listed in the index. Reference to plants with colour images is made for the following entries: (AZALEA HYBRIDS, AZALEA SPECIES, RHODODENDRON HYBRIDS, RHODODENDRON SPECIES, VIREYA HYBRIDS, VIREYA SPECIES, and INSECTS).

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