

14 Northwoods Road, Radnor, PA 19087

Chapter's Website: [www.ValleyForgeARS.org](http://www.ValleyForgeARS.org)

## **NEWSLETTER**

**January / February 2021**

Unless specified otherwise, meetings are at Jenkins Arboretum in Devon

### *Calendar at a Glance*

**Feb. 21, 2021 (Sun.) Joint Zoom Meeting with GP ARS, Steve Hootman of Species Foundation**

**March 2021 TBA**

**April 15, 2021 (Thu.) Zoom Meeting, Steve Wright, Jenkins Director of Horticulture/Curator**

### *President's Message*

I hope everyone had an enjoyable Holiday season and continues to do well during the Covid-19 pandemic. This year we will begin our 2021 meeting schedule on February 21<sup>st</sup> with our annual joint meeting with the Greater Philadelphia Chapter. This will be a Zoom Meeting and thanks to Ron Rabideau, President of the GP Chapter, our speaker will be Steve Hootman of the Rhododendron Species Botanical Garden, Federal Way, WA. Details are still being finalized and we will get them out to everyone very soon. We are also presently working on our March VFARS meeting and we will also get that information to you soon. This year we decided to move our January meeting to April 15<sup>th</sup>. Our speaker will be VFARS Board member and Jenkins Arboretum Director of Horticulture/Curator Steve Wright, who will discuss the native rhododendron germplasm repository project he is managing at Jenkins. Steve felt that moving the meeting to April will give him more time to add important data to his presentation. Most likely both of these meetings will be also be via Zoom.

I hope everyone had a chance to read the December bonus issue of the VFARS Newsletter that our District 8 Director, Steve Henning, put together. The idea was that we just wanted to add a little something extra for Rhododendron enthusiasts since we missed so many meetings and events this past year. Hopefully before 2021 is over we will be able to once again meet together for a live and in-person meeting. In the meantime, we will do what we can to keep everyone's interest in Rhododendrons alive and well. And if you haven't renewed your ARS membership, please put it on your New Year's Resolution, the Valley Forge Chapter and the American Rhododendron is truly depending on you.

I would like to close by wishing our Chapter Vice-President, Alice Horton, who has been under-the-weather for some time, a speedy recovery. Alice, we are thinking of you and wishing you well.

Everyone, please stay safe.

*Sincerely,*

*Jerry O'Dell*, (610) 608-2018, [westdell@verizon.net](mailto:westdell@verizon.net)

**VF ARS website:** [www.ValleyForgeARS.org](http://www.ValleyForgeARS.org)

## Caring for Rhododendrons in Winter

When winter approaches our rhododendrons exhibit many new characteristics, some good and some bad. When it gets cold our rhododendron's leaves will droop. If it is really cold, the leaves will curl their leaves inward so less leaf surface is exposed; the plant's trying to keep water from evaporating out of its leaves. Then if it warms up, some buds may begin to open, but this is usually ill-fated and won't amount to much except less flowers in the spring. During cold spells when nothing appears to be happening above ground, the roots can be busy becoming more fully developed and stronger. In the following sections we will investigate why these

things are happening and what we should be doing.



*Typical Rhododendron in Winter*

### Droop and Curl in Rhododendrons

Some rhododendron leaves begin to droop when temperatures drop to around 35 °F. Around 32 °F the leaves cup and curl at the edges. Around 25 °F, the leaves will be curled very tight. The actual temperatures depend upon the variety. This problem is not caused by insects or disease but is a way the plant protects its leaves during cold, dry, windy weather. Plants should return to normal when the weather warms again.

- Above 40°F: Leaves are open and horizontal to catch the sun's rays
- 40 – 34°F: Leaves start to droop, but don't really start to curl yet
- 33 – 25°F: Leaves droop all the way down and begin to curl
- Below 25°F: Leaves curl up into tight rolls

In cold weather, high light exposure to rhododendron leaves is detrimental. It damages chloroplasts that are responsible for photosynthesis. However, the rhododendrons that have the ability to droop and or roll their leaves can reduce exposure to light. Such temperature related behavior is called thermonastic leaf movement. The drooping occurs in the petiole (leaf stem). The leaf curl occurs in the leaf itself. So, the temperatures at which these phenomena occur is different. The protection of the photosynthesis producing chloroplasts is important because most photosynthesis in rhododendrons occurs in early spring before the leaves on deciduous trees come out. Some rhododendrons such as *R. ponticum* don't exhibit thermoplastic leaf movements. For rhododendrons that are cold hardy such as *R. catawbiense*, a typical response is:

Leaf curling and leaf drooping are distinct behaviors with different responses to climatic factors and possibly different adaptive significances. Leaf angle is controlled by the hydration of the petiole, as affected by water availability from both the soil and the atmosphere and by air temperature. In contrast, leaf curling is a specific response to leaf temperature, and the leaf hydration state has little effect. The physiological cause of leaf curling is not well understood, but the mechanism must lie in the physiology of the cell wall or regional changes in tissue hydration. The thermotropic drooping of rhododendron leaves most likely serves to protect them from membrane damage due to high irradiance and cold temperatures during the long winters. In addition, the thermotropic leaf curling in rhododendrons may serve to prevent damage to cellular membranes during the process of daily rethawing that often occurs during the morning.

Caring for your rhododendrons through the winter season is easier if you understand how these plants are damaged to begin with. Cold injury in rhododendrons is caused by desiccation, too much water evaporation from the leaves without any to replace it. When cold, dry winds blow across leaf surfaces, they are drying and increase the rate of evaporation. Unfortunately, in the winter it's not uncommon for this to happen when the ground is frozen solid, limiting how much water can be brought back into the plant. Without adequate water levels in their cells, the tips and edges of leaves of rhododendrons will turn brown and die. Rhododendrons attempt to protect themselves from winter dehydration by allowing their leaves to hang down and curling them. This mechanism is often effective, but there are things you can do to help protect your rhododendrons from winter damage. The ideal

location of a rhododendron is where it gets some winter shade but early spring sun, and is protected from the winter winds.



*Winter burn damage in rhododendrons*

### **Fall and Winter Bloom in Rhododendrons**



*One flower in a truss opening in fall*

Some rhododendrons can be easily tricked into blooming in late fall or during winter. The buds usually don't fully open and are not a satisfactory bloom. This basically destroys a bud that would otherwise produce a beautiful flower in the

spring. Hence, this trait is undesirable. Dr. Sandra McDonald and others have studied this and found some techniques that may reduce the problem.

It was observed that fall and winter blooming was most prevalent in plants that had suffered a dry spell before going dormant. This seemed to stop the process that makes flower buds go dormant in preparation for the winter. Then these plants



*One flower in a truss opening then freezing*

enter the fall and winter without the flower buds being dormant. When the buds are properly hydrated again, they can easily be tricked into blooming. Often this is a time when frosts or winter cold can kill the flowers. Even if they aren't killed, the bloom is seldom satisfactory. Since flower buds are already formed in early summer, the number of buds for spring bloom is reduced. This condition is exacerbated if there is a cool spell in the fall or winter followed by a warm spell which can trick the buds into opening.

The corollary to this is to water plants during dry spells to prevent them from enduring a dry spell that interrupts their normal process of flower bud development and the process whereby the buds go dormant. Plants in full sun need more water. One huge caution: make sure you have good drainage and do not overwater. Root rot is a killer of rhododendrons and is caused by roots that are kept too wet, especially in hot weather. A symptom of root rot is the drooping of the leaves, the same symptom as that for being too

dry. So, don't be tricked into watering a plant that is too wet already.

The best solution is to avoid varieties that are susceptible to this problem. In the Hampton, VA area, Dr. McDonald observed these to be the most problematic varieties:

**Rhododendrons:** Album Elegans, Antoon van Welie, Balta, Belle Heller, Confection, Cunningham's White, Elie, Evening Glow, Everestianum, Graf Zepplin, Kate Waterer, Kevin, Kentucky Cardinal, Mist Maiden, PJM, Princess Juliana, Purple Splendour, Rainbow, Red Cloud, Spring Dawn, Van Nes Sensation, Whitney Orange, Wissahickon, Yak-Corona, R. carolinianum (some), R. dauricum (some), R. hippophaeoides (some).

**Evergreen Azaleas:** Dorset, Hexe, Opal, Indian Summer.

**Deciduous Azaleas:** Golden Oriole, Peachy Keen, R. luteum (some).

## Root Activity in Winter

The roots of hardy woody plants don't go completely dormant in winter. Unlike the above-ground parts that pass the winter in dormancy, roots seem to maintain a readiness to grow independent of the above-ground parts of the plant. Roots remain mostly inactive but can function and grow during winter months whenever soil temperatures are favorable, even if the air above-ground part is brutally cold. While roots tend to freeze and die at soil temperatures below 20°F, minimum temperatures for root growth are thought to be between 32 and 41°F. So, if the soil thaws out and warms slightly, winter roots can break dormancy and become active. This is called "winter quiescence." Roots are resting but ready. This is extremely important for the health of most woody plants. It is this trait that allows evergreen plants to absorb water from the soil and avoid winter desiccation in their leaves, and it is this trait that allows all species, including deciduous hardwoods, the opportunity to expand their root systems in search of water

and nutrients in advance of spring bud break.

A woody plant's roots tend to be less cold hardy than its stems and buds. This is fine, so long as the soil is sufficiently insulated by a covering of snow against extremely low air temperatures. A good early season snowfall can keep soil unfrozen throughout the coldest of winters. In such years, sustained winter root activity may replace previously damaged roots, may ready the plant for spring bud break, and may translate into excellent aboveground growth during the following summer.

Conversely, a deep snowpack coming later in winter, after the soil is already frozen, can also insulate the soil in a harmful way. These late snows actually keep soil frozen for extended periods. The surface layers of forest soils do commonly freeze, and when they do, it is not good for roots or the stems and branches dependent on them. Not only do the roots remain

inactive under such frozen conditions, but the freezing, heaving, and cracking of winter soils physically damages roots, particularly the fine feeder roots in the uppermost organic layers. This can trigger a cascade of effects on overall plant health. By reducing a plant's ability to take up water and nutrients, particularly during spring bud break, winter root damage limits subsequent stem and branch growth in summer. In turn, this can contribute to plant mortality and may even explain some dead plants. Winter injury to feeder roots is inherent and natural in northern climates.

If the flower buds are failing, that could be wind damage. If the leaves look desiccated, scorched and brown, that could be a combination of winter wind and sun. Because rhododendrons root much more shallowly than other plants, it's extra important to keep a thick layer of mulch over this delicate system. Four inches of an organic mulch, like wood chips or pine needles, is often adequate protection from the cold. It'll also slow water evaporation from the ground, helping your plant stay hydrated. Make sure to give your plants a long, deep drink of water on warmer days so they have a chance to recover from cold snaps.

A windbreak made from burlap, lattice or a snow fence can help slow those drying winds, but if your plant is already planted in a protected area, it should be safe enough from winter damage. A little bit of winter damage is ok; you'll just want to cut out the damaged sections early in the spring so your rhododendron can get back into shape before the bleached leaves become an eyesore. Hence, the ideal location of a rhododendron is where it is protected from cold winter winds, gets some winter shade but early spring sun.



*Under snow cover the roots are busy*

## Other Winter Hardiness Factors

Cold hardiness varies from variety to variety. Rhododendrons that are sun-tolerant and grown in the sun are slightly hardier than the same plants grown in partial shade. It is common occurrence that plants grown in partial shade get sun burned when moved out into full sun. Similarly, if rhododendrons are pruned after new foliage has appeared, the foliage that was shaded by the removed foliage will get sun burned. However, enhanced cold hardiness of field grown rhododendrons often is not appreciated enough.

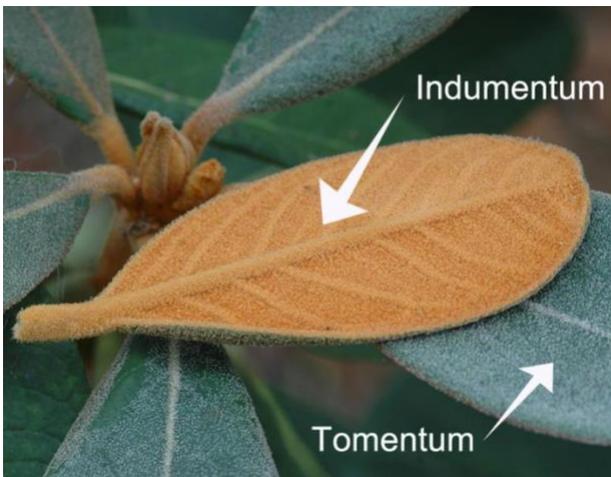
Younger plants are less hardy than mature plants. Normally it takes 5 years from germination for a plant to reach maximum hardiness. Some 2- to 3-year-old plants are as much as 10 °F less hardy than when mature. I have noticed this in Evergreen Azaleas. It is probably more noticeable since they are often less cold hardy.



*Leaf sun scorch which occurred when the leaves were curled.*



*Leaf sun scorch which occurred when the leaves were curled.*



*Indumentum on Rhododendrons*

Indumentum is thought to confer some enhancement of cold hardiness. Indumentum is the soft, woolly mat of epidermal hairs found on the underside of leaves in some rhododendrons. Indumentum can range from white to orange to brown. Some rhododendron leaves, especially young ones, are naturally covered with this woolly mat of hairs. Indumentum is a prized feature of certain species of rhododendrons. Indumentum protects leaves from environmental stress and from some diseases. It should be left intact and

not rubbed off. Stomata and indumentum are both on the reversed side of the leaf. Stomata are the pores from which rhododendrons release oxygen, take in CO<sub>2</sub>, and lose moisture. Hence, it is not surprising that indumentum protects the stomata from desiccation.

In rhododendrons, F2 hybrids are hardier than F1 hybrids. An F1 hybrid is a normal hybrid between two different rhododendrons. An F2 is a second-generation plant that is selfed. However, this enhanced cold hardiness if F2 hybrids often takes a while to develop, often 5 years.

## Preventing Winter Damage

Proper care during the growing season is a crucial part of keeping rhododendrons alive through the winter. Providing adequate water is essential. For optimum growth, most rhododendrons require

one inch of rainfall or supplemental irrigation every week. Avoiding dry conditions is especially important during flower bud development and winter dry spells.

However, to prevent root rot, good drainage is even more important. In hot weather, it is better to err on the side of a little too dry since that is when root rot is most likely to become a factor. However, fall watering is extremely important and should continue until the temperature drops below 40 degrees. Also avoid fertilizing after mid-July because it may delay dormancy.



*An example of curled and drooping Rhododendron foliage during cold temperatures.*

Many winter injury issues can be solved by choosing appropriate plants. Hardiness is the first thing to consider. Rhododendrons should be hardy enough to survive in the zone they are planted without too much extra care. Location is just as important as plant selection. Since harsh winter winds and sun can damage rhododendrons, they should be planted in partially shady areas where they are protected from prevailing winds. Generally speaking, avoid planting in dry soil, full sun, or on exposed windy sites. Avoid

exposed southern or western sites where winter sun and wind will cause the most damage.

Trouble comes when a plant cannot bring moisture up from the roots due to frozen ground. This can result in a plant with dead, dried out leaves. An anti-transpirant, such as the well-known brand "Wilt-Pruf" can be used. This simple water-based polymer spray is applied in the late fall before the onset of cold. It helps a plant retain moisture in the leaves by covering it with a thin translucent film which does not let the moisture escape. It wears off over the course of several months. It is helpful to apply an anti-transpirant the first winter. Since most plants will not have their roots established fully into the surrounding soil, this spray is a huge help in establishing the plant through this crucial time. Other important measures include mulching or using physical barriers such as burlap to block the wind. Mulching rhododendrons, especially those that have been newly planted, insulates the soil and protects the plant's roots. At least two inches of mulch should be applied over the root zone, taking care not to pile the mulch against the trunk. Some good mulches are those that are acidic and will not compact...such as pine needles, oak leaves, pine bark chips, pine bark shredded mulch, and evergreen branches. Creating a windbreak with burlap may also help. Never cover the top of the plant. The ideal location of a rhododendron is where it is protected from cold winter winds, gets some winter shade but early spring sun.

### **But What Can We Do In Winter?**

So, assuming we have picked hardy varieties, planted them with appropriate protection from winter sun and wind, and mulched them properly, what is there to do in winter? The main thing is to watch for long dry spells in winter and if the soil is not frozen, water them. Yes, water in

winter if necessary. The roots are active when not frozen and need to be kept from drying out. This is especially true for plants that were recently planted. If the subsoil is still frozen, be careful when watering to only moisten the soil and to not drown them.

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## ARS 2021 Virtual and Live Convention

### *Rhodos Down East: Exploring the North Atlantic Region*

**June 3-6, 2021**

The 2021 ARS Convention will be held in Wolfville, Nova Scotia, from June 3-6, 2021. Many people may still face travel restrictions due to the pandemic, so the organizers are planning an option to participate via video conferencing. Virtual registration will open January 15 and for a fee of \$60 US (\$80 Canadian), people will be able to participate remotely, hear the many outstanding speakers and go on garden tours virtually.

Take advantage of an exciting opportunity to learn about growing, breeding and gardening with rhododendrons. Due to the travel restrictions caused by the COVID-19 pandemic, the 2021 American Rhododendron Society Convention will be offering all the presentations, garden tours and networking opportunities available on line, to anyone who can access the internet! For those who can travel to Nova Scotia ([novascotia.ca/coronavirus.travel](https://novascotia.ca/coronavirus.travel)) there will also be an in-person sessions and garden tours as well as a plant sale featuring rare and unusual rhododendrons propagated especially for this event.

Speakers include Ken Cox, famed Scottish rhododendron breeder from Glendoick Nursery in Scotland; Joe Brusco, rhododendron breeder from Massachusetts; and Todd Boland from Newfoundland's Memorial University Botanical Garden. The Convention will start with the program, "Introduction to Mi'kma'ki" by Gerald



**Lighthouse at Peggy's Cove**

Gloade, a Mi'kmaq naturalist and educator who will tell the stories of the first people that explain the natural history since the area was covered by ice. Garden tours, both virtual and in-person, will include the Kentville Research Centre, Annapolis Valley Historic Gardens and Peggy's Cove barrens as well as private gardens. Networking opportunities will include the

Breeder's Roundtable where you can hear about the latest trends in rhododendron breeding, and the ARS Next Generation Project which will show how to involve the next generation in your local ARS club. Those attending in-person can enjoy social events that feature the seafood, cider and wine from our local producers.

Registration for the virtual convention will open January 15! Registration for the in-person convention will open on February 15, if permitted by Public Health restrictions.

### Registration Information and Fees

Virtual registration opens January 15, 2021.  
Late virtual registration fee starts April 1, 2021  
Registration Closes May 1, 2021

Virtual Convention Registration Fee:

\$60 US / \$80 Canadian before April 1, 2021.  
\$75 US / \$100 Canadian after April 1, 2021

In-Person Registration Opens February 15, 2021, if permitted by Public Health restrictions.

ARS Convention 2021 Fee:

\$190 Canadian (incl. convention fee, Thur. reception/ Fri. dinner/Sunday, plant sale, workshops and lunch) before April 1.  
Late Fee \$210 Canadian after April 1

Tours prices in Canadian dollars:

Friday bus tour to Annapolis Royal gardens \$80  
Saturday bus tour to Peggy's Cove barrens \$80  
Saturday evening Lobster banquet \$75

## ARS Membership Renewals Were Due December 1st

Thank you if you renewed already. If not, please support the ARS and send in your dues. Even if we can't meet face to face right now, we hope you enjoy the ARS Journal and our chapter newsletters. We appreciate the many Associate Members from other chapters, too.

The ARS now accepts online renewals for those who prefer to pay by credit card or personal Pay Pal account. To avoid dealing with the mail,

check out the ARS Office and click on Membership:

<https://www.arsoffice.org/>

You will need your "membership number" to complete the renewal process which is on your Journal mailing label.

If you have any questions, contact: Darlene Henning at: 717-735-7116 or by email at [mdhenning@earthlink.net](mailto:mdhenning@earthlink.net).



**ARSStore.org** *Where every purchase benefits the American Rhododendron Society*

### Stay Safe – Shop Online: Target & Amazon Smile are available

*We hope you and your loved ones are staying safe during this Pandemic. If you are doing online shopping during these challenging times, please remember to use the ARS affiliate stores, AmazonSmile or Target*

Walmart has terminated its agreement with [ARSStore.org](https://www.arsstore.org). AmazonSmile is still available and pays 0.5% to the ARS.

What is even better is the Target ARS Store. The online Target ARS Store offers most of the same products with free shipping and pays the ARS approximately 4% on online sales.

Use the ARS Stores:



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### **In This Issue**

- Page 2 Rhododendrons in Winter
- Page 2 Droop and Curl of Rhododendrons
- Page 3 Fall and Winter Bloom
- Page 4 Root Activity in Winter
- Page 5 Other Winter Hardiness Factors
- Page 7 Preventing Winter Damage
- Page 8 ARS 2021 Nova Scotia Convention
- Page 9 ARS Membership Dues Renewals
- Page 9 ARSStore.org online shopping

### **ARS websites:**

[rhododendron.org](http://rhododendron.org) [ARSStore.org](http://ARSStore.org)

[ARSOoffice.org](http://ARSOoffice.org) <https://ars75.org/>

Use <http://arsstore.org/>

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Secretary: vacant

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VF Chapter's web site: [ValleyForgeARS.org](http://ValleyForgeARS.org)

Please contact us with email changes or if you receive this newsletter by letter carrier rather than email, even though you have e-mail. Please inform Steve Henning of any changes ([rhodyman@earthlink.net](mailto:rhodyman@earthlink.net)).