

American Rhododendron Society



84



27



238



American Rhododendron Society

A GUIDE TO THE SOCIETY

President: Bruce Feller
Past President: Don Smart
Western Vice President: Robert MacIntyre
Eastern Vice President: Ann Mangels
Treasurer: Bill Mangels
Secretary: Kath Collier

Executive Director: Laura Grant
Journal Editor: Glen Jamieson Ph.D.
Webmaster: Bob Weissman
Journal Technical Reviewers: Kenneth N. E. Cox, Harold E. Greer, Steve Hootman, Stephen Krebs Ph.D., G. David Lewis Ph.D., Erik T. Nilsen Ph.D., Registrar Michael Mills, Kathy Van Veen, Donald H. Voss, Mark Widrechner Ph.D.

ARS Districts & Chapters

District Director Terms

2014: Ann Whitney, Sally Perkins, Larry Coleman, Nicholas Yarmoshuk
2015: Tim Walsh, Steve Henning, Don Hyatt
2016: Ken Webb, Richard Fairfield, Marvin Fisher

Districts, District Directors, Chapter Chairpersons

DISTRICT 1

District Director: Ken Webb
Alternate: Chris Hodgson
COWICHAN VALLEY CHAPTER - Sandra Stevenson
FRASER SOUTH CHAPTER - Brenda Macdonald
MT. ARROWSMITH CHAPTER - Linda Derkach
NANAIMO CHAPTER - Art Lightburn
NORTH ISLAND CHAPTER - Paul Wurz
VANCOUVER CHAPTER - Nora Halic
VICTORIA CHAPTER - Norma Senn

DISTRICT 2

District Director: Richard Fairfield
Alternate: Doug Keogh
CASCADE CHAPTER - Dianna Davis
KOMO KULSHAN CHAPTER - Lori Bayes
PILCHUCK CHAPTER - Doug Keough
SEATTLE CHAPTER - Bill Heller
WHIDBEY ISLAND CHAPTER - Arlee Anderson

DISTRICT 3

District Director: Ann Whitney (interim)
Alternate: Clarice Clark (interim)
JUAN DE FUCA CHAPTER - Sonja Rotter
KITSAP CHAPTER - John Bullivant
LEWIS COUNTY CHAPTER - Joanne Campbell
OLYMPIA CHAPTER - Jack Horn
OLYMPIC PENINSULA CHAPTER - Jean Eichman
PENINSULA CHAPTER - Steve Johnson
SHELTON CHAPTER - Tom Noreen
TACOMA CHAPTER - Walt Brooks

DISTRICT 4

District Director: Anne Gross
Alternate: Dave Collier
EUGENE CHAPTER - Ali Sarlak
PORTLAND CHAPTER - Maria Stewart
SIUSLAW CHAPTER - Larry Jensen
SOUTHWESTERN OREGON CHAPTER - Ray Lee
TUALATIN VALLEY CHAPTER - Eree Pennington
WILLAMETTE CHAPTER - Wallace Reed

DISTRICT 5

District Director: Tim Walsh
Alternate: Richard Jones
CALIFORNIA CHAPTER - Paul Anderson
DE ANZA CHAPTER - Nan Ray
EUREKA CHAPTER - Bruce Palmer
HAWAII CHAPTER - Sherla Bertelmann
MONTEREY BAY CHAPTER - Shirley Coleman
NOYO CHAPTER - Jim Celeri
SOUTHERN CALIFORNIA CHAPTER - John Morris

DISTRICT 6

District Director: Sally Perkins
Alternate: Barbara Gingras
CAPE COD CHAPTER - Weston Dreher
CONNECTICUT CHAPTER - Tom Flanigan
MAINE CHAPTER - Marilyn Brinnick
MASSACHUSETTS CHAPTER - Don Brophy

DISTRICT 7

District Director: Marvin Fisher
Alternate: Marianne Feller
NEW YORK CHAPTER - Cathy Bird
PRINCETON CHAPTER - Mike O'Hara
TAPPAN ZEE CHAPTER - Arnold Card

DISTRICT 8

District Director: Steve Henning
Alternate: Michael Martin Mills
GREATER PHILADELPHIA CHAPTER - Maris Ogg
LEHIGH VALLEY CHAPTER - Linda Young-Bandala
PINE BARRENS CHAPTER - Ted Stecki
SUSQUEHANNA VALLEY CHAPTER - John Bartlett
VALLEY FORGE CHAPTER - Bob Smetana

DISTRICT 9

District Director: Don Hyatt
Alternate: Dave Banks
MASON DIXON CHAPTER - Ray Smith
MIDDLE ATLANTIC CHAPTER - Theresa Brents
POTOMAC VALLEY CHAPTER - Robert McWorter

DISTRICT 10

District Director: John Brown
Alternate: Hale Booth
AZALEA CHAPTER - Charles Andrews
PIEDMONT CHAPTER - Rick Ellis
SOUTHEASTERN CHAPTER - Jackson McCarter
TENNESSEE VALLEY CHAPTER - Jimmy Wooten
WILLIAM BARTRAM CHAPTER - Glenn O'Sheal

DISTRICT 11

District Director: Larry Coleman
Alternate: Marty Anderson
ANN ARBOR CHAPTER - Jan Grichor
GREAT LAKES CHAPTER - Charles Wagner
MIDWEST CHAPTER - Edwin Nyquist
OZARK CHAPTER - Robert Stassen

DISTRICT 12

THE RHODODENDRON SOCIETY OF CANADA
District Director: Nicholas Yarmoshuk
Alternate: Sondra Meis
RSC ATLANTIC REGION CHAPTER - Cora Swinamer
RSC NIAGARA REGION CHAPTER - Sondra Meis
RSC TORONTO REGION CHAPTER - Kristine Vikmanis

CHAPTERS AT LARGE

Director: Paul Anderson, M.D.
Alternate: Carl Adam Lehmann
DANISH CHAPTER - Ole Flindt
DUTCH CHAPTER - Wilbert Hetterscheid
FINNISH CHAPTER - Kristian Theqvist
J. D. HOOKER CHAPTER - Sri Keshab C. Pradhan
SCOTTISH CHAPTER - John Hammond
SWEDISH CHAPTER - Stefan Salomonson
NON CHAPTER MEMBERS - Contact Executive Director

ARS Committees and Chairpersons

Archives: Sandra McDonald, Ph.D.

Azalea: James Fry

Budget & Finance: Dave Collier

Bylaws & Policies: Fred Whitney

Digital Publications: Bob Weissman

Editorial: Sandra McDonald, Ph.D.

Electronic Media: Bob Weissman

Electronic Newsletter: Marty Anderson

Endowment: Bill Mangels & Jeff Cheyne

Fundraising: Don Smart

Honors: Dee Daneri

Long-range Planning: Paul Anderson, M.D.

Membership: Cathy Bird

Nominations: Don Smart

Plant Awards: Ray Smith

Program Library: Linda & Marvin Fisher & Donald Hyatt

Public Education: Harold Greer

Publicity & Public Relations: vacant

Registrar of Plant Names: Michael Martin Mills

Research Committee: Harold Sweetman, Ph.D.

Research Foundation: Karel Bernady

Rhododendron Database: vacant

Seed Exchange: Norman Beaudry

Flower Show & Judging Advisory Resource: Bruce & Marianne Feller

Speakers Bureau: Bill Stipe

Test & Display Gardens: Nicholas Yarmoshuk

Society Contacts

ARS Home Page: <http://www.rhododendron.org>

ARS Office: <http://www.arsoffice.org>

ARS On-line Journals: <http://scholar.lib.vt.edu/ejournals/>

JARS/

ARS Archives: <http://www.lib.virginia.edu/small/>

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*

To Join the Society

Membership categories:

(January 1 – December 31)

Student (include proof if over 18)	\$10.00
Regular	\$40.00
Commercial	\$90.00
Sustaining	\$75.00
Sponsoring	\$150.00
Life single	\$1,000.00
Life family	\$1,500.00

You can join the ARS through your local ARS chapter (check the website www.rhododendron.org for chapter contact info) or by sending a check or money order directly to the Executive Director of the American Rhododendron Society at the above address. Checks must be in US funds. Make checks payable to the "American Rhododendron Society." Membership includes one year (4 issues) of the *Journal American Rhododendron Society* and affiliation with the chapter of your choice. **To receive the winter issue of the Journal, renewals must be postmarked no later than Dec. 1.**

From the President

Bruce Feller
Old Field,
New York



As you read this, those fortunate enough to have attended the Fall Regional Conference in Nova Scotia are reflecting back on what was most likely a wonderful experience in a part of the world with its own special charm and character. In many respects, autumn events like this hold particular appeal for many of us who spend countless hours in our gardens—a disproportionate number in May when there seems to be no end of “self imposed” chores dedicated to the health and welfare of our respective landscapes.

Of course, offsetting these obligations are the unrivaled pleasures and satisfaction of peak bloom period, garden tours, flower shows and all else punctuating the spring season. For many, this time of year also carries the obvious promise of renewal and new beginnings. But for others, I among them, the onset of autumn signals a time of slowed pace, relief from the personal and horticulture rigors of high summer temperatures, insect activity and the repetitive garden chores imposed by the summer season. For those who grant garden space to plants other than rhododendron, autumn can also provide an incredible palette of color when we are more likely to have the time to enjoy it.

Japanese maples, *Acer palmatum*, are among the most reliable fall foliar color plants and some of these can make very suitable companions for our rhododendrons. Cultivars of open growing habit and light shade pattern are the best candidates. Naturally occurring seedlings of the widely distributed cultivar ‘Bloodgood’ are among the most interesting. While ‘Bloodgood’ itself has a very competitive root system and dense shade pattern, arguing against its use as a companion, its offspring are widely variable as one would expect from seed propagation. Typically, they are very open growing and not particularly aggressive. While not usually holding the strong, red leaf color of ‘Bloodgood’ through the summer months, their autumn show is often spectacular, and like other Japanese maples quite reliable year to year. Of course, there are many other commercially available cultivars of *Acer palmatum* that also share the characteristics that make them suitable companions for our rhododendron gardens. Among them are ‘Red Pygmy’, ‘Villa Taranto’, ‘Koto no ito’, ‘Okushimo’ and others. If Japanese maples are not part of your landscape, this is the season to view them in established gardens to evaluate their performance and narrow your choices based on personal preference. Look at established plants, because containerized nursery specimens seldom display their ultimate potential for autumn color.

Closing thoughts: For many of us autumn is the season when new plants are installed in the garden and major design alterations are contemplated and implemented. Arguably, those activities hold their own special promise of renewal and things to come. Typically, autumn also marks the commencement of Chapter activities and the associated opportunity to renew friendships with fellow enthusiasts. Whatever your range of opportunities and preference, enjoy your gardens, enjoy the season—enjoy life. One final word—my apologies to those readers who do not stray from the world of *Ericaceae* for the digression into another genus.

From the Editor

Glen Jamieson
Parksville, BC
Canada



The past few months have been really busy for me with respect to *JARS*, as not only has there been another issue to produce but I've been working with the Editorial Committee on how both the printed *JARS* and the on-line format can be made most relevant to ARS members. As part of a journal exchange program, I receive complementary copies of journals from other rhododendron societies in Australia, New Zealand and Germany; the Rhododendron Species Foundation yearbook; and journals from some companion plant societies (Conifer and Rock

Garden), which allows me to compare formats and the content characteristics of their publications with that of *JARS*. With four *JARS* issues per year and 64 pages in each issue, *JARS* has the greatest content overall, but because currently only a maximum of 16 pages per issue are in colour, photos and their placement relative to their mention in text is somewhat restricted. Here I rely on the amazing capabilities of my Assistant Editor, Sonja Nelson, who organizes the layout of each issue to make each issue as readable as possible.

We have thus been looking at options to increase the colour content while keeping cost down. Because of a higher cost, having the option of colour on every page would likely mean reducing each issue's length to about 48 pages, a situation we hope to avoid, so we're presently evaluating compromise options. Of course the on-line, digital *JARS* version doesn't have this issue, as there are no cost implications for colour throughout

There though, the big challenge is to increase acceptance by ARS members, as to date relatively few members have even tried accessing it. Its main advantages in addition to more colour photos are the ability to locate images in close proximity to text references, no storage space requirement apart from having a computer, its easy searchability for specific names or topics, and last but not least, its free distribution

The negative attributes of digital format which appear to be delaying its acceptance by many current ARS members are their preference for printed material (perhaps a generational issue, as many younger members are more computer friendly and even prefer digital material); the current technical challenges of passwords, log-on, etc., in accessing issues; and its simply being a change from the status quo, which everyone is generally comfortable with. Increased acceptance may thus depend on making access simpler and perhaps creating financial incentives such as a reduced ARS annual membership fee for those that are willing to forgo a printed format. To this end, I am initiating surveys of members to determine what options and features members prefer with respect to both the printed and digital *JARS* issues. I hope I can have the cooperation of all ARS members in this regard, as it is only with feedback from most members that we can determine the best products to provide

FALL 2013 VOLUME 67 NUMBER 4

Journal American Rhododendron Society (ISSN 0745-7839). Published quarterly (Jan. 15, April 15, July 15, Oct. 15) by the American Rhododendron Society, P.O. Box 525, Niagara Falls, NY 14304-0525 USA. Membership in the Society includes a subscription to the *Journal American Rhododendron Society*. Annual membership dues are \$40.00 per year. Copyright 2013 by the American Rhododendron Society. Permission to reprint any portion of this volume must be granted in writing by the Editor. The Society assumes no responsibility for its advertisers. International Standard Serial Number of Journal ARS 0745-7839.

2 FALL 2013

Table of Contents

Features

- 4 Middle Atlantic Chapter Works to Place Rhododendrons and Azaleas in the Public Eye BY SANDRA MCDONALD
- 12 Garden Legacy Collections BY KATH COLLIER AND JEFF CHEYNE
- 16 Band-aids for Boot Blisters: Medical Experiences while Plant-Hunting in Asia BY GARRATT RICHARDSON
- 22 Dr. James Cullen: A Farsighted Taxonomist Who Changed the Way We Look at Rhododendrons
- 26 Autumn Blooming Rhododendron Cultivars BY HARTWIG SCHEPKER
- 30 Summary of 'Cellular Mechanism of Thermonasty in *Rhododendron*: Are Membrane Water Channel Proteins (aquaporins) Involved?' BY RAJEEV ARORA
- 38 Initial Impressions of INKARHO® BY STEPHEN KREBS
- 44 Nomenclatural Codes Belong in Your Toolbox BY DONALD H. VOSS
- 48 Bless This Mess: How Being Less Tidy Can Improve the Ecology of Your Garden BY COLLEEN MIKO
- 72 An Early History of Vireya, The People, Places & Plants of the Nineteenth Century - Part 1 BY CHRIS CALLARD
- 78 Hellebores: The Delight of Our Yard BY MARDI ANDREWS
- 83 Using Potted Plants to Create a Garden Landscape BY MARY PARKER
- 88 The Big Leaf Rhododendrons BY DON HYATT
- 90 The Word: Mycorrhiza BY BRUCE PALMER
- 93 *R. sutchuenense*: Subgenus *Hymenanthes*, Sect. *Ponticum*, Subsect. *Fortunea*. Group A (leaves lanceolate/oblanceolate)
- 94 Notes from the International Rhododendron Registrar 2012 BY ALAN LESLIE

Society News

- 47 Letter to the Editor
- 50 Bronze Medal Awards
- 52 In Memoriam: Robert "Bob" Ranville Hart
- 52 In Memoriam: Dave Richard Shepherd
- 53 In Memoriam: Eleanor Duttweiler Stubbs
- 53 Rhododendron Calendar
- 34 ARS Endowment Fund Update
- 56 5th International Vireya Seminar, February 21st and 22nd, 2014
- 57 View Online ARS Journal
- 58 ARS Officers and Directors
- 60 ARS Committees and Chairpersons
- 62 ARS Services
- 116 Commercial Members

- 118 New Members 6/1/2013-8/11/2013
- 118 In Memoriam 6/1/2013-8/10/2013
- 118 Chapter/District/Special Donations 6/1/2013-8/10/2013

Publications

- 64 Index: *Journal American Rhododendron Society*, Volume 67, 2013
- 70 Book Review
- 98 Newly Registered Rhododendron Cultivar Names

Cover Photos

Clockwise from top left: A potted landscape by Mary Parker; 'Herbstgruss' by Hartwig Schepker; 'Tidewater Firecracker' by Sandra McDonald.

Middle Atlantic Chapter Works to Place Rhododendrons and Azaleas in the Public Eye

Recent dedication ceremony at Norfolk Botanical Garden adds to MAC gardens

Sandra McDonald
Hampton, Virginia



The Middle Atlantic Chapter (MAC) has been working towards increasing the number of rhododendrons and azaleas in public areas for many years. The most recent project is the establishment of a garden featuring my azalea hybrids at the Norfolk Botanical Garden in Norfolk, Virginia. This, however, is only one of many projects carried out by the Middle Atlantic Chapter over many years.



McDonald azaleas at Norfolk Botanical Garden. Photo by William Bedwell.

Efforts Over the Years by MAC

In recent decades there have been several MAC projects including rhododendron species and hybrid donations to the Lewis Ginter Botanical Garden in Richmond, Virginia, from 1985 to 1987. Two West Virginia members, Dr. Douglas Jolley and Harry Wise, had a project of raising native azaleas at Dr. Douglas Jolley's nursery and then giving plants, mostly native azaleas, to the West Virginia Wesleyan College, Kanawha State Forest, Sutton Dam, Sunrise Museum, the Coonskin Park near Charleston, and the Canaan Valley State Park. In Virginia they gave plants to the Blue Ridge Community College, Blandy Farm of the Virginia State Arboretum in Winchester, and the Town of Hot Springs. Harry Wise did much volunteering and maintaining of plantings, especially at Coonskin Park, and was recognized with a Certificate of Merit in Horticulture in 1997 from the Garden Clubs of America. Other MAC members also gave plants to the College of William and Mary and Colonial Williamsburg prior to 1988. Larger projects were developed at the Norfolk Botanical Garden and at the Edith J. Carrier Arboretum at James Madison University.



Regional map of Middle Atlantic Chapter area. The flowers are near where the different garden locations are. JMU is in Harrisonburg, NBG is in Norfolk, Ginter is in Richmond, Blandy is in Winchester, and Charleston, West Virginia, is near where Coonskin Park is. The star is Washington, D.C.



Entrance to the Edith J. Carrier Arboretum at James Madison University. Photo courtesy of the Arboretum.

Edith J. Carrier Arboretum and Botanical Gardens at James Madison University (JMU)

This 125-acre (50.6 ha) urban botanical preserve is located within the city of Harrisonburg, Virginia. It contains 33 acres (13.4 ha) of naturalized botanical gardens and 92 acres (37.2 ha) of forest. The forested acres were obtained in 1993 and hold 80- to 90-year-old oaks and hickories. The Arboretum features native plants of the mid-Appalachians (woodland wildflowers, azaleas, and rhododendrons); a collection of non-native trees, shrubs, and bulbs; an oak-hickory forest; a lowland swale; a shale barren; herb and rose gardens; a pond habitat; and a wetlands garden.



Azalea and Plaque at JMU's Edith J. Carrier Arboretum. Photo by the author.

In 1977, biology professor Dr. Norlyn Bodkin proposed establishing an arboretum at JMU. The Arboretum was finally established in 1985, and had its name changed to the Edith J. Carrier Arboretum and Botanical Gardens in 1998. Dr. Bodkin, a member of the Linnaean Society in London, became the Arboretum's first director in 1995,



McDonald plants at JMU's Edith J. Carrier Arboretum. Photo by the author.

the year after the McDonalds began working with the Arboretum. A year or two before that, Dr. Douglas Jolley and his MAC Nursery, which consisted of West Virginia MAC members Harry Wise, Frank Pelurie, Merle Aitken, the Jarretts, Mike Breiding, Jim Boyer and Davita Jolley, had contributed seven different species of rhododendrons, a total of 34 plants over three years to the Arboretum.

In 1994 Kenneth and Sandra McDonald were downsizing their nursery, Le-Mac Nurseries, Inc., and had many mature plants over 20 years old and five to seven feet (1.5-2.1 m) tall that would be suitable for an arboretum. When MAC member and JMU volunteer Ron Brown of Harrisonburg heard from Douglas Jolley that Le-Mac was going to be downsizing, he told Dr. Bodkin, who was very interested in following up, especially with the large collection of the native *Rhododendron prunifolium* the nursery had. Many other mature rhododendrons and many mature evergreen azalea seedlings from the nurseries' test fields in Hampton, Virginia, were also dug and transported to the Arboretum in Harrisonburg, a round trip of about 400 miles (640 km). Dr. Bodkin of JMU, Dennis Whetzel of the Arboretum staff, and MAC member and JMU volunteer Ron Brown made at least six trips in vans and trucks to Hampton to dig plants in November and December of 1994 and in April, June, October, and December of 1995, removing over 500 plants in total.

On May 30, 1996, the James Madison University Arboretum and the Arboretum Advisory Council held a dedication of the Sandra and Kenneth McDonald Azalea and Rhododendron Garden at the Arboretum in Harrisonburg. Approximately 90 MAC members and James Madison University friends and staff attended the dedication. Speakers were Dr. Norlyn Bodkin, Curator; Barbara Wheatley, Arboretum Advisory Council President; Dr. Barbara Castello, Vice-President of JMU Advancement;

Glenda Rooney, Assistant Vice-President, Parent and External Relations; and Sandra and Kenneth McDonald. James Madison University President Dr. Ronald E. Carrier dropped by to greet guests.

Subsequently, MAC put a bench in the Arboretum in honor of its president Terry Sheuchenko, who had died in office. One of the MAC's charter members, Mrs. Gladys Wheelden, also made a substantial monetary donation to the Arboretum. Currently a group of MAC members who live within an hour's driving time of Harrisonburg have begun holding occasional work days at the Arboretum to clean up damage from a derecho storm in 2012.

Norfolk Botanical Garden

The Norfolk Botanical Garden is celebrating its 75th anniversary this year (2013). The garden was established on June 30, 1938, with a Works Progress Administration (WPA) grant of \$76,278 for the Azalea Garden Project. The idea for the 75-acre (30.4 ha) Azalea Garden Project came from Norfolk City Manager Thomas Thompson, who admired the azalea gardens in South Carolina. The idea was carried out by a young French-American horticulturist, Frederic Heutte. Thomas Thompson was a friend of the great landscape architect Charles Gillette who was working then in Charlottesville, Virginia, and Frederic Heutte, also a friend of Charles Gillette, heard that Norfolk wanted to develop its parks. Frederic Heutte was hired in 1936 to develop the Norfolk Parks system. During the Depression, most of the male labor force was at work with other projects for the city so a group of more than 200 African American women and 20 men were assigned to the Azalea Garden Project. After clearing underbrush from the selected area in the Norfolk watershed just to the north of the proposed Norfolk airport, more than 4000 azaleas, 2000 rhododendrons, 100 bushels (about 3000 to 3500 kg) of daffodils, and several thousand miscellaneous shrubs and trees were planted by March of 1939. The World War II war effort was hard on the garden, and it was maintained by only five people during those years and barely escaped having the azalea beds replaced by barracks for the soldiers. At the last minute, the location of the barracks was relocated to do as little damage to the azaleas as possible. However, the garden was fine enough in 1947 to be featured in the May issue of *National Geographic Magazine*.

In 1955, the name of the garden was changed to Norfolk Municipal Gardens. That same year, the first International Azalea Festival was promoted, and it was held annually at the garden for many years. Its name was changed again in 1958 to the Norfolk Botanical Garden. There are now 40 theme gardens located on 155 acres (62.7 ha). Over many years, the Norfolk Botanical Garden has received plants on occasion from Le-Mac Nurseries, Inc., a wholesale grower of azaleas and rhododendrons in Hampton, Virginia. Around 1994, additional plants were moved to the gardens by MAC member and Greenhouse Supervisor Michael Andruczyk and the Curator of Plant Collections Kun-

so Kim, who together made several trips to this nursery to dig plants to move to the Norfolk Botanical Garden because of the downsizing of Le-Mac Nurseries.

McDonald Hybrid Garden Dedication

On April 28, 2013, a garden dedication ceremony was held at the garden. The Norfolk Botanical Garden in Norfolk, Virginia, had designated an area of the garden and had gathered together there some of MAC member Sandra McDonald's hybrids from other areas of the garden and propagation facilities. Staff at the garden including Director of Horticulture Brian O'Neil, Curator of Woody Plants Matthew Goble, Plant Recorder David Foss, and Propagator Vickie Pepper had been working on the project when Jim Brant of MAC proposed applying for grants from both the ARS Endowment Fund and from MAC for signage for the garden, as well as signage both for another area



Ken and Sandra McDonald with plaque at NBG. Photo by William Bedwell.

McDonald Hybrid Azaleas - Text on Plaque

Starting in the mid 1970's, Dr. McDonald began a breeding program with the intention of developing azaleas that were hardy to the region (USDA Zone 7-8), and featuring the fancy and unusual flowers typical of the more tender florist azaleas. McDonald hybrid azaleas also tend to have attractive evergreen foliage, long bloom periods and a neat compact habit making them a great addition to any home garden.

There are 22 registered cultivars and several other named or numbered cultivars, most of which can be found here. In addition, many one-of-a-kind seedling plants which were a part of the hybridization program are planted here.

In recognition of her contributions to horticulture, Dr. McDonald was awarded the 1988 Silver Medal Award and the 2006 Gold Medal Award by the American Rhododendron Society.

Norfolk Botanical Garden's relationship with the Le-Mac Nursery goes back many years to Ken McDonald, one of Le-Mac's founders, and Frederic Heutte, the Garden's first executive director. Le-Mac and the McDonalds have generously donated many azaleas to the garden through the years.



Jim Brant and Sandra McDonald at NBG. Photo by William Bedwell.

containing Glenn Dale azaleas and for a Native Azalea Educational Display.

At the ceremony MAC President Lloyd Willis gave a short speech before the unveiling of the sign:

“I bring greetings from the Middle Atlantic Chapter of the American Rhododendron Society. The Middle Atlantic Chapter is highly pleased that two of its most distinguished members are being honored today. Sandra and Ken McDonald are both appreciated and loved for their service to the MAC Chapter. Congratulations to the two of them for this new honor.” After the unveiling, Jim Brant read the new descriptive sign to the audience.

The beds in this area contain a collection of McDonald hybrid azaleas. These azaleas were developed by local hybridizer Dr. Sandra McDonald at Le-Mac Nurseries in Hampton, Virginia. Most of the plants are young plants that were propagated by the Norfolk Botanical Garden staff by cuttings from the gardens of Jim Brant and the McDonalds over several years. A few older plants from other parts of the garden, obtained earlier by Michael Andruczyk and Kunso Kim, were moved here.

Following the dedication and refreshments, the staff took MAC members on a tram tour around the Norfolk Botanical Garden to see many of its famous azaleas and other plants in bloom. Jeff Miller, Executive Director of the Virginia Nursery



'Rosy Frills'. Photo by William Bedwell.



'Springtime Blush'. Photo by the author.



'Salmon Sunrise'. Photo by William Bedwell.



'Dreamsicle'. Photo by the author.

& Landscape Association, attended the dedication and published an article in the April/May/June VNLS Newsletter about it.

MAC has distributed a large number of azaleas and rhododendrons in our region of the eastern United States. In addition to putting the plants where they can be seen by the public we now have the added bonus of several more areas to visit on garden tours at some of our chapter meetings.



'Sandra's Harlequin'. Photo by the author.

Note: The 2016 ARS-ASA Convention will have tours of the Norfolk Botanical Garden.

Sandra McDonald is a member of the Middle Atlantic Chapter.

Garden Legacy Collections

Kath Collier
Boring, Oregon



Jeff Cheyne
Sherwood, Oregon



Over the years, many of us have amassed wonderful collections of plants, some of which are very rare, some very large, some very special to your heart, and some with no tags.

There comes a time when we may choose to move and in the process need to downsize or liquidate a collection. With that often comes the hope and desire that the collection can somehow be protected, or at least appreciated.

“It is best to plan when you are alive and while the garden is in good shape,” fellow member Jeff Cheyne recommended. Jeff and Debi Cheyne joined my husband Dave and me for dinner one evening to talk about what options ARS members might have for protecting a rhododendron collection. “You cannot control what happens after you sell the property,” Debi said. “New owners could bulldoze the yard, or ignore the plants and let them die,” she cautioned. Often the parties that procure a property do not have the same “passion or desire” as the original owners, Jeff added, making the protection of a collection on a sold property problematic.

We talked about the need for an inventory and map of the collection that would identify the location of an individual plant (perhaps using a geographic positioning system [GPS] device) and plant name (at the very least). Often the person who knows the most about the collection is the only one who knows the plant name. Having an up-to-date inventory would make it possible for an independent rhododendron expert to assess the value of the collection and/or determine whether a specific plant is special in some way, such as being rare, expensive, or in demand.

Knowing the value of each plant makes it possible to take advantage of a tax break for certain types of donations. Sometimes, people are able to find buyers for their plants. In some cases, the buyer might be a commercial business looking for larger plants, smaller nurseries in the process of getting started, or businesses

that want to build a display garden. In most of these cases, the companies may be looking for a bargain and may not be willing to pay much for unnamed plants. “Plants with no names are hard to set a price for,” Jeff continued. “A lot of folks are not interested in “no name” plants.”

Even if people are interested in buying some plants, there may be expenses in getting the plants dug and removed from a site. Provisions for those costs could be described as part of a will, Jeff indicated. Provisions, he said, might identify who should receive the plants, and provide monies for digging and moving plants and if necessary, maintaining the plants during the transition process. In some cases, plants may need to be cared for temporarily until the weather is better and the plant can be safely moved and planted.

What If There is No Buyer?

Several members during the May 2012 convention reported some innovative ideas for addressing this problem.

ARS Chapters can help in a number of ways. One District Director reported that a Chapter in his district sponsors a raffle at each Chapter meeting on behalf of a member needing to downsize their collection. The winner gets to dig a plant of their choice from the donor’s garden.

In another case, a grower who was down-sizing invited Chapter members to purchase and dig plants at their nursery on a selected weekend and offered deep discount rates. Some members dug plants themselves and brought them in to their Chapter meetings for New Member gifts, door prizes, auctions, and other Chapter sales.

Chapters might even want to develop a committee and program for helping members with this process. This could include providing experts to help appraise the collection, classifiers to help name plants, and coordination of other activities that might help the donor take advantage of taxable deductions to registered charitable organizations or disbursement of their plants. Part of this process might be helping hybridizers protect their legacy by getting hybridizing record books and other records into the ARS archival library.

Some private or public gardens may be interested in acquiring plants. A garden in this case may include a Chapter-supported garden or perhaps one that belongs to a school, organization, or other association. Many Chapters support local gardens that may be an excellent recipient for plant collections because there are people involved there that have the skills to take care of them.

Recently, long-time Portland Chapter members Fran and Ed [deceased] Egan donated a wonderful collection of deciduous azaleas to a new display at the Crystal Springs Rhododendron Garden. They worked closely with garden managers on plant selection, transition, and planting. They also had prepared

A sample provision for a specific plant distribution in a will to a selected rhododendron garden, or gardens

"I give my rhododendron collection together with any related companion plants located at (Address where collection is located) to the (Name of Rhododendron garden of choice) ("Garden"), located in (Name of City and State/Province), or its successor in interest, to be added to and used as part of its rhododendron and general plant collection and for the Garden's general charitable purposes. Representatives from the above-named Garden may for a reasonable period of time after receipt of written notice of this bequest enter the property where my rhododendron collection is located to review and choose any plants that they wish to move from my collection; bring any excavation and transport equipment reasonably necessary onto my property, provided reasonable precautions are undertaken to protect any property (other plants and/or features) surrounding the selected plants from damage; excavate the selected plants; fill-in any holes caused by the excavation; repair any damage caused by the plant removal and move the selected plants to the Garden."

Another optional Will statement may state:

"In addition, I give (specify dollar amount) to (Name of Rhododendron garden of choice) ("Garden"), located in (Name of City and State/Province), or its successor in interest, to be used to assist in the cost of removing, repairing the decedent's property, transporting and maintaining the donated plant collection and for the Garden's general charitable purposes. Except as provided above, property passing under this bequest passes free of any administrative expense or death taxes.

If the (Name of Rhododendron garden of choice) no longer exists at the time of death, and has no successor in interest or its successors in interest cannot be identified with reasonable certainty, the Personal Representative (Executor) shall designate one or more other charitable organizations having the same or similar charitable purposes as the (Name of Rhododendron garden of choice) to receive this gift. The gift may be divided in the amounts the Personal Representative (Executor) determines if there is more than one interested recipient of my plant collection."

the collection and included a name with every plant. What a wonderful gift and legacy!

Some members, friends, relatives, or other interested folks may be interested in procuring or adopting plants. However, balancing needs and desires in this process can be difficult. One party might under-estimate the amount of work involved, or over-estimate how many plants the recipient really wants or can handle. The process of digging, transporting, planting, and irrigating can be hard work and expensive, and we all know that the larger the plant, the more difficult and costly it can be to move.

Again, communicating needs and expectations up front can help minimize the chance of being overwhelmed by the process and timeframe. There's a big difference between just taking cuttings and removing a significant collection of large plants. The recipient may be only interested in a small number of plants, or a sampling of them, and not potentially thousands of plants that they have no way of maintaining. We all have limitations. One thing that could also be overlooked is how the site is left once the plants have been removed. In some cases the holes may need to be filled, debris removed, ground cover planted, and so on.

“Do it now” Debi advised. “Don't wait.” Consider working with and identifying willing recipients in your will, and setting the stage ahead of time for protecting the collection. A collection can live on. “Protecting and planning for a collection,” Jeff summarized, “can be part of your life's plan.”

Kath Collier is a member of the Southwest Oregon Chapter and an associate member of the Portland Chapter. Jeff and Debi Cheyne are members of the Portland ARS Chapter.

Band-aids for Boot Blisters: Medical Experiences while Plant-Hunting in Asia

Garratt Richardson
Seattle, Washington



In 1988, Warren Berg was headed to Bhutan with a bunch of Brits under the leadership of Keith Rushforth. There was a cancellation and I was able to accompany these seasoned travelers. I hadn't practiced general medicine for 20 years but felt that perhaps I might be called on to manage any number of medical problems. Several participants were in their late sixties and I had visions of heart attacks, heart failure, respiratory problems, seizures, fractures, pain, nausea, diarrhea, pneumonia, allergies, skin infections, burns, lice, boils—you name it. I brought medicines to treat all these and other perceived risks such as eye and bladder infections. For surgical equipment there were scissors, suture material, forceps, needles, a needle-driver and hemostat, sponges, injectable anesthetic and sterile gloves. A blood pressure cuff, thermometers, and stethoscope were included, and antiseptic swabs, antibiotic ointment, adhesive tape and bandages were sure to be needed. I even brought tongue depressors (actually handy as a small splint). There were several kinds of broad and narrow spectrum antibiotics, narcotic analgesics—both injectable and in tablet form. Allergic reaction management included an anaphylactic kit for bee stings, steroids and antihistamines. A large bottle of antacid tablets could be especially helpful in treating the vague stomach complaints of the porters and local people, and Diamox© (acetazolamide) was important for high altitude sickness prevention. These supplies could all be placed in a 12 in wide by 8 in deep and 10 in high (4 gal; 16 l) hard plastic container. It meant keeping a constant eye on the box as it was transferred from vehicle to pony to porter and back again. Amazingly, on that first trip, I don't remember using any of the contents!

The thing about so many plant-hunters is their rugged independence. They are not complainers, they view themselves as hardy individuals, and they are

confident. If they think they might just run into some sort of trouble, they will personally bring items that will take care of the problem. Many bring their own supplies including antibiotics. Not wanting to be perceived as disadvantaged or incapacitated, they will treat themselves as best as possible, according to their experience—which is often considerable, just grinning and bearing it.

Starting on this 1988 trip, I arrived in New Delhi a couple of days prior to the arrival of the rest of the team. It was October and I spent the whole day traveling to and from the Taj Mahal. I woke early the next morning with back pain on my right side. I recognized the symptom for what it was—a kidney stone. Because it was a higher class hotel, an on-call doctor was available and arrived at 9 a.m. He concurred with the clinical diagnosis and gave me some pain pills (but didn't say "if it's not better, call me in the morning"). What he didn't tell me was to drink as much water as possible. It had been the dehydration from the hot bus trip and only a cup of tea during the previous day that had precipitated (literally) the problem. Fortunately, I was better by noon! In warm climates and with a lot of walking and climbing, it is very easy to become dehydrated. Symptoms of fatigue, headache, dizziness or lightheadedness, irritability and confusion are early warnings of dehydration. Dark colored urine and decreased output are the best signs of dehydration and anything darker than pale yellow means "Drink"!

The only incident that I remember while in Bhutan was when Warren elected to ride on a pony. Ponies don't pay much attention to their riders, and while this one went under a fallen tree easily enough, the tree was low enough that because he hadn't seen it, it smacked Warren right on the forehead. Fortunately it didn't knock him off the animal and it didn't knock him out. But he felt that bang for a good week afterward. The skin wasn't broken so no medical attention was needed, just a little analgesic.

On a different trip, another pony incident was potentially more serious. We were coming down from a pass on the Salween (Nu) River in Yunnan in western China. A pony laden with large bags of equipment going down hill wasn't going to get out of the way for one of the trekkers standing at the side of the trail. The force of the bag in forward motion brushed against him and completely knocked him off the track and down the hill. It was fortunate that there was only shrubbery that he fell into and so he wasn't injured. I had a similar incident where I was walking along a steep hillside trail on a drizzly day. I slipped on the downside and I ended up on my seat sliding backwards down the grassy slope unable to grab onto anything to slow me down. My back hit a stump with such force that I was completely breathless—a sensation I had never experienced before. It took me many minutes to catch my breath. I realized how lucky I was: there could have been a sharp broken branch on the stump that could have punctured one or both my lungs. This incident was compounded by

My now-much-abbreviated medical kit includes the following:

- Band Aids – large and small
- 2 x 2 in (5 x 5 cm) sterile gauze pads – to clean wounds and to cover large scrapes
- Adhesive tape for skin – to fasten a gauze pad covering large scrapes
- Hibiclens® – an antiseptic antimicrobial skin cleanser possessing bactericidal properties.
- Steri-strips® – to close a cleaned wound with separated skin
- Elastic wrap – for joint support and to cover larger wounds.
- Ciprofloxacin – a broad spectrum antibiotic – a prescription medicine from your doctor.
It is useful for traveler's diarrhea and for fevers if medical consultation is not available.
- Pain relievers: aspirin, ibuprofen or a similar non-steroidal anti-inflammatory drug (NSAID). Tylenol (Acetaminophen) for those unable to take NSAIDs.
- Q-tips® to help clean deeper wounds
- Moleskin for blisters
- Neomycin® or other triple antibiotic ointment for use on cleaned wounds.
- Scissors
- Tweezers
- Antifungal ointment (see text)

the fact that I was walking alone—some friends were in front and others were in back. But I had slid far enough down the slope that I was not visible from the trail. Very close to this time, another colleague was walking along the stone siding of an aqueduct and slipped, falling towards a several hundred foot (60+ m) precipice. He was extremely lucky to have been able to grab a branch which could support him and allow him to recover his footing. He was alone and had he fallen down the mountain side, no one would have known where to look. Near that same spot, I also slipped but fell the other way into the moat. The hazards we don't think about and almost never talk about!

Last year I was photographing a sign from the top of a large rock which was more slippery than I realized. I slid down the rock and landed on my back with such force I knew I would hit my head on the ground. But my stuffed little backpack acted as a marvelous cushion and my head luckily didn't touch the ground.

Getting into the back-country of China and then traveling from one site to another often requires sitting in a vehicle for many hours at a time and even for several days. One of my fellow travelers, being a bit older than the rest of us, complained of a sore leg. On examination it was clear he had developed

thrombophlebitis (inflammation of a vein or veins)—a potentially serious condition which can lead to blood clots being released and lodging in the lungs. Local pain, swelling and reduced mobility are other symptoms, and sometimes anticoagulants or anti-biotics may be necessary. Fortunately, it was at the end of the trip but still two days from Kunming in Yunnan Province of China. I recommended his taking a regular schedule of aspirin as a weak anticoagulant and to get in the tub in the hotels to soak his leg in hot water for as long and frequently as possible. I'm not sure how closely he followed my advice, as he seemed quite indifferent to it. We returned to Kunming where coincidentally I knew a couple of surgeons whom I had met in Seattle the year before and with whom I had toured their hospital earlier in the trip.

They provided a consultation and recommended that he be hospitalized. My friend wisely demurred. I think hospitalization in China in 1991 would have been quite fraught with hygienic and general medical dangers. He made a complete recovery on return to Seattle.

Diarrhea is a common enough malady in Asia due to poor hygiene standards and lack of clean water. Taking Ciprofloxacin just a couple of times over a day or so will usually knock out this so-called "traveler's diarrhea." One time a trekker had intractable diarrhea despite everyone pitching in to offer a different antibiotic, none of which worked. When she got back home, she was diagnosed with a *Campylobacter* species of intestinal infection and was treated successfully there. This genus of bacteria is becoming a well-recognized source of diarrhea.

Explorers often have to spend several days at a time at altitudes over 10,000 ft (3048 m). Warren had told us in order to prevent high-altitude sickness, you should take 250 mg of acetazolamide the night before you plan on being at or above 10,000 feet and one tablet the morning of ascent. This has always worked very well for me. I first discovered comparatively mild symptoms of being at high altitude when I hiked as a tourist on Mount Kinabalu (13, 435 ft; 4095 m) on the island of Borneo. The local guide led us from the lodge at 6000 ft (1828 m) to a hut at 10,000 ft where we stayed overnight before the final ascent. I had a slight headache all night, wasn't hungry and didn't sleep. There was no worsening of symptoms as we climbed to the top and descended to the lodge the same day. Symptoms quickly abate with descent. The elevation of Lhasa, Tibet, is 11,450 ft (3490 m). It is strongly advised to take prophylactic measures prior to arrival since so many are affected by this rapid elevation gain. One of the trekking members going to Tsari (a couple of day's drive east of Lhasa) had been told by his doctor to take the medicine if he started to get symptoms. By then it was too late. When we reached a 14,000 ft pass (4267 m), his headache was incapacitating and he could barely move. It took him several days to recover with acclimatization. On return to Katmandu, we had our final dinner at a very nice

hotel. In the middle of the dinner, I was alerted that this same fellow was slowly slipping into unconsciousness. When I got to him, he was uncommunicative. He had no pulse and I thought he must be in shock from a heart attack. I went downstairs to the lobby with the idea of calling an ambulance to take him to the nearest hospital. There was only one phone and the desk clerk was busy talking away while our local guide tried to get him to end the conversation. I explained to the clerk the nature of the emergency and the need for an ambulance. He said there isn't such a thing but he would call the hospital. I explained to the doctor on call what I thought was going on and he said they would send help. On returning to the dining room, I saw that the fellow was waking up. He had suffered from what is called a "vasovagal attack," where nerves in the solar plexus cause a pooling of blood into the intestines and the peripheral blood pressure drops causing weakness, fainting and a feeble pulse. He later told me he had been investigated at home for several of these episodes and no treatment had been offered. He made a complete recovery, and no ambulance ever arrived. It points out the value of alerting some group members, especially the leader and/or physician, of any of your individual medical conditions that may require special treatments.

Other prophylactic measures are also sometimes recommended.

In India and southeast Asia, malaria is endemic and prophylactic anti-malarial medication is strongly recommended. One of our guides in Arunachal Pradesh developed a classic case of malaria. He recognized its symptoms of cyclical fever, chills and malaise. He had acquired the local drug for it but it really wasn't working—he started to look very ill and stayed that way for the duration of our trip. However the form of malaria found there is rarely life-threatening, and a partial immunity is developed in those locales. He made a complete recovery and is busy leading trips again. There are several highly effective anti-malarials and your family or travel medicine physician can provide up-to-date information on available options.

Hepatitis A, a water-borne disease, is endemic in underdeveloped countries. Although rarely serious it is an unnecessary affliction that is easily prevented by vaccination.

Japanese encephalitis can be problematic in southeast Asia. Although I haven't had the vaccination myself, I had the fun of giving the last of three jabs to one of my fellow travelers whose doctor had recommended it.

Injuries on my trips have been fortunately uncommon—an occasional bang on the head from a low hanging branch, a cut or two, or a blister. However, once a pony suffered quite a gash in his side when an ice axe it was carrying ripped open its skin. I tried to keep the infection to a minimum with frequent washings of hydrogen peroxide. My suture material wouldn't have been strong enough to

sew up the thick and tough hide, and in addition, we didn't have enough proper solution to truly clean it before suturing. It was taken to a veterinarian in the next town but the final outcome isn't known.

Maybe the most unusual experience was on a trip to the Salween River. "X" came into my room and said that he thought he may have a tick in his butt. Doctors aren't very squeamish so I said "Let's have a look." Sure enough there was a tick located right at the orifice. A standard local method is to put a lit cigarette close to it so that the heat makes it back up and therefore easy to remove. This was not an option in this case! My friend suggested putting Vaseline on it and waiting for 30 minutes. The idea I suppose was to try to suffocate it and make it back up. A half hour later I checked and the thing had backed out enough that I could safely pull out the entire creature and not be concerned about a subsequent infection had the embedded head remained embedded.

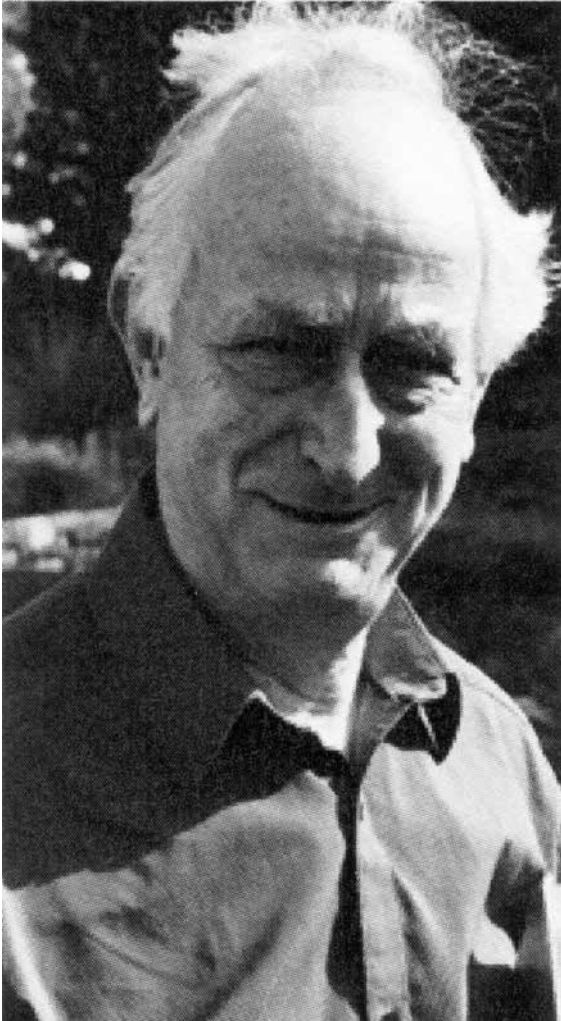
Rashes are another common ailment when traveling in tropical and sub-tropical climates. Any moisture that occurs in skin creases and folds can create an environment for fungal infections. The classical one of course is "athlete's foot" (*Tinea pedis*), but other *Tinea* species like to grow in armpits, crotches, under breasts, etc. I've seen red splotches just on the exposed surfaces of legs, arms and abdomen. The standard antifungal creams such as miconazole, clotrimazole, and tolnaftate are available over the counter and seem to work equally well. Just a few applications will usually take care of the problem, if one remembers now to keep these areas as dry as possible to prevent a recurrence. A hair dryer works really well to dry an area but they're rarely found in remote areas and are not typically included in minimal luggage situations.

Finally, unexplained high fevers have developed in a couple of trekkers on my trips. Since there was no obvious source and no diagnostic tools, I gave them broad-spectrum antibiotics and after a couple of days, they both made a complete recovery.

However, times may be different now. Most of the recent plant explorations seem to have been done with four-wheel drive vehicles, accommodation in well-equipped hotels, and access to improved medical care. That plastic box with all that medical equipment is now long gone. Still, treks to remote areas, days away from civilization, slogging up and down mountains in rain or shine, discovering new species, living the life of a pioneer, seeing the fantastic vistas, the exotic cultures, and the camaraderie, I wouldn't miss for anything.

Garratt Richardson is a member of the Seattle Chapter and a Director of the Rhododendron Species Foundation.

Dr. James Cullen: A Farsighted Taxonomist Who Changed the Way We Look at Rhododendrons



Dr. James Cullen. Photo courtesy of the Cambridge University Botanic Garden.

Dr. James Cullen, Director of the Stanley Smith (UK) Horticultural Trust, died on 11 May, 2013, aged 77. Following school, James enrolled for a degree in Botany at Liverpool University in 1954 where he graduated with first class honours having completed a study on the taxonomy of poppies, a genus he was to love for the rest of his life. He went straight on to complete a PhD on *Anthyllis*, the vetches, and in 1961 started work with Peter Davis on the seminal *Flora of Turkey* project, working for the University of Edinburgh, but based at the Royal Botanic Garden Edinburgh. James, along with Mark Coode, was responsible for establishing the format of the project and for getting it off the ground and was to stay with the Flora for the next five years. In 1966 he went back to Liverpool having been appointed Assistant Director of Ness Botanic Garden, the garden founded by

A.K. Bulley who sent George Forrest on his first expedition to Western China. Whilst at Ness he became interested in rhododendrons, as the garden holds a significant collection, and James stayed until 1971, at which time he returned to Edinburgh as Assistant Keeper, effectively the Deputy Director, of the Garden.

Now established at Edinburgh in a senior administrative and scientific position, James was to have a major influence on a number of programmes. He was instrumental in establishing a major project in 1972 on the taxonomy of the Ericaceae, from which the much needed revision of *Rhododendron* was launched. This was very controversial with many rhododendron growers and enthusiasts at the time, but it was needed and James saw it through to its completion. After several preliminary papers, a preliminary synopsis, and participation in the 1978 International Rhododendron Conference at New York Botanic Garden, he published Part I of the revision himself in 1980 and maintaining the momentum in ensuring that others, notably David Chamberlain, completed the remaining parts from 1982 onwards. Having completed the scientific work he became involved in completely redesigning the *Rhododendron* collections in the Garden to reflect their new taxonomic arrangement. Assessing and replanting the Garden's long-established rhododendron collection was a mammoth undertaking and involved restructuring a number of areas. The project was finally completed in 1987.

James was, above all, noted for being a horticultural taxonomist, used to dealing with plants in collections and requiring a slightly different skill set from those working on the plants from a particular country or a particular group of plants. In 1976 he embarked on the *European Garden Flora* Project, with the Secretariat based in Edinburgh and with an editorial committee chaired by Max Walters from 1977 to 1989 and by James from 1989 to 2000. The work eventually comprised six volumes covering 16,000 species and was compiled by 175 authors. A second, revised, edition edited mostly by James and Sabina Knees who had been involved in the early days of the Flora, followed in 2011. His interest in rhododendrons continued unabated and his many years of work on the genus culminated in the 2005 publication of *Hardy Rhododendron Species: A Guide To Identification*, which contains keys and descriptions together with an extremely useful 40 pages of Identification Tables for the genus.

Of equal value to the horticultural world was the publication of the *Identification of Flowering Plant Families*, co-authored initially with Peter Davis. This short, user-friendly guide provided all the information necessary to identify the flowering plant families found in the wild or cultivated in northern temperate regions. This ran to four editions, the most recent published in 1997. It probably impacted on even more people than the *European Garden Flora*. Generations of students in horticultural colleges and universities and professionals throughout the world will have used this Guide as a way of identifying and understanding plant families. James taught a two term plant taxonomy course to horticultural students at Edinburgh every second year, using this book as a basis for his lectures which were hugely enjoyed by students who found them

both interesting and practically useful.

But compilation of these two publications was not a stand-alone, isolated activity. The knowledge and expertise in horticultural taxonomy created by the team of staff working on the project spilled out into the Garden of the R.B.G.E. and James's close friendship with Dick Shaw, Curator of the Garden at that time, was to have a profound influence on the Living Collection of plants, an influence that endures to this day. Under James's guidance there were regular identification and verification sessions to ensure that all plants in the Garden were correctly identified and labelled, and the garden started focussing more and more on acquiring wild origin plant material, as this was more valuable for research, than plants from catalogues or from other collections. These "Wednesday idents," as they were called, were greatly enjoyed by all who attended them and were a great place to learn about plant identification. Indeed, the numerous permanent and temporary staff, summer studentships, trainees and volunteers who were associated with the EGF benefited greatly and are now employed in botanic gardens throughout the world, having gained valuable experience under James's influence.

The first comprehensive policy for the Living Collection was developed at this time using criteria that are used to this day. James was also responsible for the first computerised plant records system at Edinburgh, started in the early 1970s, making Edinburgh one of the very first botanic gardens in the world to computerise their plant records. Indeed James was responsible for the general widespread use of computers in the Garden. It was a period of very close cooperation between science and horticultural staff, which was entirely due to James' influence and encouragement, and his contribution to the advancement of cultivated plant taxonomy was immense.

James left Edinburgh in 1989 when he took up the post of Director of the Stanley Smith (UK) Horticultural Trust, taking over from Sir George Taylor and basing himself at Cambridge University Botanic Garden (CUBG). The flexibility offered by this appointment gave him the opportunity to continue helping and influencing young people through the provision of grants for travel, publications and the creation of gardens, yet left him time to continue his research, writing and lecturing. He was an efficient and effective Director and greatly enjoyed the interaction with those applying for grants. Grants provided generously by the Trust have underpinned the work of rhododendron organisations and conferences, including last spring's International Rhododendron Species Conservation Conference held at the R.B.G., Edinburgh.

In addition to the Trust's work James did a lot for the Garden at Cambridge and was a mentor to many staff and trainee horticulturists and was much liked and respected as a result. In particular he played a large part in developing the Garden's records particularly the switch from card index to a database in the late 1980s, just as he had done in Edinburgh during the 1970s. He also had a great deal of input into the library, selecting new works and generously loaning his own books. He also worked with many staff, helping to verify and identify plants in the collection. Until recently he ran the

identification tests for trainee horticulturists thus ensuring that many generations benefited from his plantsmanship and deep knowledge. He also gave introductory lectures on nomenclature and taught on the Garden's week-long Systematics course, thus reaching a wider audience.

In the last 10 years or so he worked closely with local artist Georita Harriott on material for Curtis's Botanical Magazine, with the result that the Garden has contributed over 50 plant portraits and 3 special part issues. He was also Chair of the Friends of the Botanic Garden until 1996, just another of the many ways he contributed to CUBG. For his outstanding work on horticultural taxonomy, and in particular the revision of *Rhododendron*, the Royal Horticultural Society awarded him the Veitch Memorial Medal 2001.

There are probably many scientists who have helped and mentored younger colleagues, and many who have written papers or books that have stood the test of time and are still regarded as the standard treatment of a subject, and again many who have made a lasting impact on an institution to the extent that their policies and procedures are still followed many years later. But there are very few who have done all these things, and have done so with the quiet modesty so typical of James. But he did achieve these things and in so-doing made a positive impact on those who knew him, on plant science and the world of botanic gardens.

Adapted with permission by John M. Hammond from an article written by Dr David Rae, Director of Horticulture and Learning, Royal Botanic Garden, Edinburgh for PlantNetwork.

Autumn Blooming Rhododendron Cultivars

Hartwig Schepker
Bremen, Germany

Odo Tschetsch
Varel, Germany



Hartwig Schepker

(Translated and condensed by Wolfgang Ruff from Herbstblühende Rhododendron-Züchtungen. 2010. Rhododendron und Immergrüne 9: 31-36 [Journal of the German Rhododendron Society])

Rhododendrons are regarded as classic spring blooming plants, with a most pronounced bloom in May. Less common, but slowly establishing themselves, however, are rhododendron varieties that bloom in the fall in September and October.

An extension of the rhododendron bloom time has long been an important goal of rhododendron cultivation in Germany. Names like ‘Junifreude’ (‘June Joy’), ‘Juniflair’ (‘June Flair’) or ‘Juniperle’ (‘June Pearl’) already point to the late (spring) blooming of these large-flowered hybrids. Later blooming yet are descendants of deciduous azalea species *R. viscosum*. The variety ‘Sommerduft’ (‘Summer Fragrance’) has what it promises—a rose-white, even fragrant blossom, in July.

Among the evergreen rhododendrons there are also some varieties that

flower almost every year in August—‘Cunningham’s White’ is one, as well as *R. [degronianum ssp.] yakushmanum* ‘Koichiro Wada’, which in recent years, at least in one part of north Germany, had some buds already open in summer. This unexpected flowering was observed in the summer of 2008 in



‘Herbstfeuer’*.

Bremen Rhododendron Park and also on numerous Yakushimanum descendants. 'Karminkissen' ('Carmine Pillow') and 'Aprilmorgen' ('April Morning') had nearly 50% of their buds opening in some plants; 'Powergirl', 'Aureolin' and 'Clivia' having 10-30% open. Among large-flowered hybrid varieties such as 'Helen Martin' or 'Blue River', around a quarter of buds opened prematurely. Given the rarity of this observation, it could likely be a weather-induced random event for these varieties rather than an established trend.

Significantly more reliable, at least in northern Germany, is a small group of German rhododendron cultivars which regularly bloom "late." During September and October and even parts of November they can be seen in bloom. Their names indicate this special feature: 'SeptemberFlair' ('September Flair'), 'Herbstfeuer' ('Autumn Fire'), 'Herbstzauber' ('Autumn Magic'), 'Herbstfreude' ('Autumn Joy'), 'Herbstgruss' ('Autumn Greeting') and 'Weinlese' ('Grape Harvest').

For now, however, it must be stated that with these rhododendron varieties, we are not discussing "late bloomers," but rather "early" flowering varieties. The flower buds of large-blossomed rhododendron varieties will usually, depending on the development stage of the plant and its nutrients, be formed during July and August. Generally the new blossoms appear after winter, depending on the specific variety and location in Germany, especially from March to June. The au-



'Herbstfreude'.



'Herbstgruss'.



'Herbstzauber'.



'September-Flair'.

tumn-blooming rhododendron varieties, however, open their buds a few weeks after the original flower bud formation which is especially early and therefore months ahead of other spring blooming varieties.

Please note: Autumn blooming rhododendron varieties do not produce a “double” bloom, i.e., a full fall bloom followed by another full spring bloom. The bloom time, rather, is divided into “partial” spring and autumn bloom times. The varieties mentioned here open about 50% of their buds (80-90% in some years) to 100% during the fall. There-

fore, the bloom in spring is the leftover of unopened fall buds. The autumn flowering varieties show a more prolonged bloom time while their [flower] buds in the spring open separately from each other, and thus there is no full bloom then. New blossoms can be found beside spent ones, and in an extreme case, as with 'Weinlese', the bloom time can span from the end of August into November.

The phenomenon of autumn bloom is not one found exclusively through cultivation. In their natural location, varieties from the subsection *Monantha*, a small group of fall flowering plants, sometimes epiphytes, are found in the Himalayas. *R. flavantherum*, *R. kasoense*, *R. monanthum*, and the rare *R. concinnoides* [a newly re-discovered species from eastern Arunachal Pradesh] are all specifically autumn bloomers. Their potential as garden plants, however, is small because their growth is weak and flowers are small. So far, hybridization attempts in Scotland, with the goal of autumn bloom incorporation into tried rhododendron

cultivars, have failed.

For the time being, here are those large-flowered cultivars which, over the last few years, have proven to be reliable autumn bloomers. All mention of month of bloom, hardiness and bloom duration are based on northern German climatic conditions.



'Weinlese'.

'Herbstfeuer'*; *R.* 'Mrs R.S. Holford' × *R. dichroanthum*. Red flowers - 60% autumn bloom.

'Herbstfreude': *R.* 'Hachmann's Ornament' × 'Furnivall's Daughter'. 50% 'early' spring bloom. 50% September-October. Rose white - Red marking. Hardy to -22° C [-8° F].

'Herbstgruss': *R.* 'Kalamaika' × 'Perlina'. 70% bloom beginning September to end October. White – wine red wide spots. Hardy – 22° C [-8° F].

'Herbstzauber': *R.* 'Guyens's Fasching' × 'Marrakesch'*. 50% beginning September to mid November. 50% begin mid May. Hardy to -23° C [-9° F].

'September-Flair': 'Hachmann's Marina' × (*R. dichroanthum* ssp. *scyphocalyx* hybrid × *R. griersonianum*). 70-80% begin September – mid October. Light orange – plain yellow. Hardy to -18° C [0° F].

'Weinlese': *R. smirnowii* x unknown. 60-75% End August – November. Carmine red.

*not registered

Wolfgang Ruff is a member of the Mount Arrowsmith ARS Chapter. Odo Tschetsch is project manager for the German Rhododendron Gene Bank and both the webmaster of the German Rhododendron Society and a member of its advisory board. Dr. Hartwig Schepker is Scientific Director of the Rhododendron-Park Bremen, which has the world's second largest collection of rhododendron species and cultivars, and is the executive secretary of the German Rhododendron Society.

Summary of ‘Cellular Mechanism of Themonasty in *Rhododendron*: Are Membrane Water Channel Proteins (aquaporins) Involved?’

Rajeev Arora
Department of
Horticulture
Iowa State University
Ames, IA 50011



Abstract (from Chen et al. 2013)
It is postulated that leaf themonasty (leaf curling) in rhododendrons under sub-freezing temperatures is caused by water redistribution due to extracellular freezing. We hypothesize that aquaporins (AQPs), the water-channels proteins found in the cell membranes of plant cells, may be involved in controlling water redistribution and thus leaf curling. Our experimental system includes two *Rhododendron* species with contrasting leaf curling behavior: *R. catawbiense* shows leaf-curling but *R. ponticum* does not. We compared leaf movements and the expression of two AQPs, i.e., *Rhododendron catawbiense* / *ponticum* plasma-membrane intrinsic protein 2 (*Rc/RpPIP2* and *Rc/RpPIP2*, respectively), in the two species under a step-wise freezing from -2 to -8° C followed by gradual re-warming. To determine the relationship between extracellular freezing and leaf-curling, we monitored leaf-curling in *R. catawbiense* with or without controlled ice-nucleation. Our data indicate that freezing may be required for leaf curling. Moreover, in both species, *PIP2s* had increased expression at temperatures that fell in the ice-nucleation temperature range. Increased curling could be associated with the exit of bulk-water caused by freeze-desiccation. When leaves were frozen below the ice-nucleation temperature range, *PIP2s* continued to show lower expression in *R. catawbiense*, along with progressive leaf curling from -2 C to -8° C. Expression was restored as leaves uncurled during re-warming. On the other hand, *R. ponticum*, had progressively increased expression of *PIP2s* during freezing down to -8° C. We suggest that the reduced *PIP2* expression with lowering temperature below freezing is associated with leaf curling in *R.*

catawbiense. The increase of *PIP2* expression with lowering temperature below freezing in *R. ponticum* leaves may potentially be a strategy to maintain turgor (and prevent curling) by redistributing water among differentially dehydrated cells.

SYNOPSIS

Introduction and Rationale

Leaves of many evergreen *Rhododendron* species exhibit thermonasty—leaf drooping and curling phenomenon induced by freezing temperatures (Nilsen, 1987). Interestingly, however, not all large leaf rhododendrons exhibit thermonasty (Nilsen 1992); some show strong curling and drooping at sub-freezing temperatures (e.g., *R. maximum*, *R. catawbiense*, *R. brachycarpum* etc), some show inconsistent or marginal to intermediate leaf curling (e.g., *R. hyperythrum*, *R. arboretum*, *R. macrophyllum*, etc.), while some show essentially little to no such leaf curling or drooping (e.g., *R. ponticum*) (**Fig 1**).

Research by Nilsen's group (Virginia Tech) on the relationship between leaf freezing tolerance and thermonastic leaf movements in *Rhododendron* suggests a significantly positive association between the degree of leaf curling and magnitude of cold tolerance (Nilsen and Tolbert 1993). Several theories have been proposed for adaptive benefit of thermonasty in cold tolerance by rhododendrons, including "desiccation avoidance" and "mitigation of freeze-thaw damage via reduced rate of thaw," and these have been well reviewed by Nilsen (1992). More recently, however, Nilsen's group has been pursuing a hypothesis that thermonasty reduces leaf exposure to light during freezing conditions in the winter which otherwise would have damaging effect due to what is called "photo-oxidative stress" (Russell et al. 2009). Despite the predicted adaptive value of thermonasty in rhododendrons, understanding how it is brought about at the cell level still eludes us. In the present study, we have attempted to begin to understand the cellular mechanism of this phenomenon (with focus only on leaf curling, not drooping). Nilsen (1987) had hypothesized that leaf curling in *Rhododendron* results from changes / redistribution of tissue water during extracellular freezing which, in turn, could cause certain cells to selectively lose turgor leading to leaf curling. We extend his proposal to further suggest that such water redistribution may be regulated by membrane water channel proteins, i.e., aquaporins (AQPs). AQPs facilitate the rapid and passive water movement, and contribute to up to 95% of water transport across plant cells (Javot and Maurel 2002; Henzler et al. 2004; Heinen et al. 2009). Evidence is accumulating that AQPs regulate movement of cellular water in response to various environmental stimuli in plants (Hachez et al. 2006; Kaldenhoff and Fischer 2006; Maurel et al. 2008). Furthermore, AQPs are important mech-

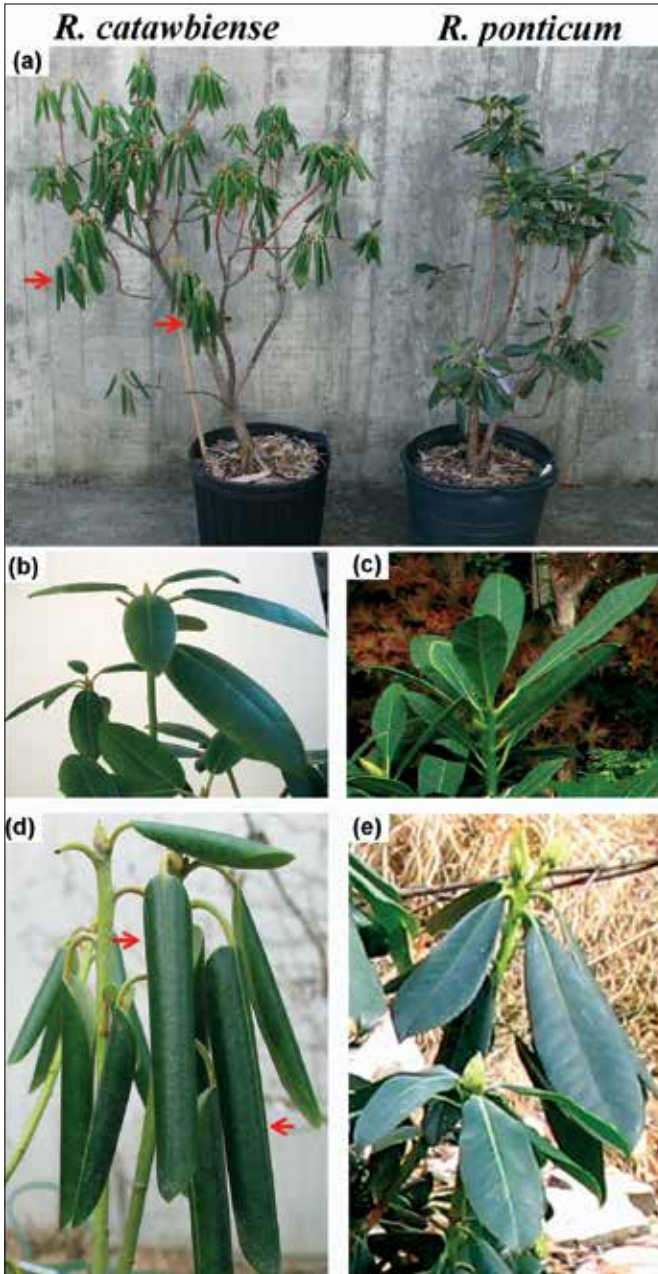


Fig. 1. The photographs showing thermonastic leaf movements and lack thereof in *R. catawbiense* and *R. ponticum*, respectively. **a)** *R. catawbiense* plant showing thermonasty in winter (December) as marked by arrows while *R. ponticum* plant showing no leaf curling; **b)** Close up of *R. catawbiense* in summer (July); **c)** Close up of *R. ponticum* in summer; **d)** Close up of *R. catawbiense* in winter; arrows indicate leaf bending and curling; **e)** Close up of *R. ponticum* in winter (no curling). The pictures (a, d and e) were taken while the ambient temperature was -5°C (from Wang et al. 2009).

anistic components of leaf (or petal) movement in various species (Heinen et al. 2009; Azad et al. 2012).

Plasma membrane intrinsic proteins (PIPs) constitute a major AQP subfamily, and can be further divided into two sub-groups, named PIP1 and PIP2 (Schaeffner 1998). We have earlier characterized two *PIP2s* from *R. catawbiense* leaves, i.e., *RcPIP2;1* and *RcPIP2;2*, and have shown that the gene products are *bona fide* water channels (Wei et al. 2005, 2006; Peng et al. 2008).

The objective of this study was to explore the potential association between *PIP* expression and leaf curling in two *Rhododendron* species (*R. catawbiense* and *R. ponticum*) where the former exhibits typical thermonasty and no curling occurs in the latter when their leaves were exposed to cold (**Fig. 1**). By extension of *PIP2s*' role in transmembrane water transport, we hypothesized that the leaf tissues of the two species would have differential *PIP2s*' expression under a cold (freeze) / warm cycle that caused leaf-curling and uncurling in *R. catawbiense* but not in *R. ponticum*.

Methods

We used about four-year-old potted clones of *R. catawbiense* 'Catalga' L-49-501B and *R. ponticum* 'RSF 76/411' (RSF, *Rhododendron* Species Foundation) for this study. Leaves were collected in March when plants were still quite hardy, arranged on a tray for leaf-curling experiment, and transferred into "low-temperature" chambers where they were cooled gradually to a series of sub-freezing temperatures (-2°, -4°, and -8° C,) holding them at each temperature for ~30 min followed by gradual step-wise re-warming back to 0° C and then finally to room temperature (21° C). Leaves were misted by ice-cold water at about -1° C during the cooling step to ensure freezing / ice-nucleation. Parallel set of leaves were cooled and warmed identically in another chamber for taking the pictures of curling and uncurling (**Fig 3**). Leaf temperatures were monitored using thermocouples. Replicated leaf samples for all treatments were collected and used for gene expression analysis using a technique called quantitative real-time polymerase chain reaction (qPCR) (Chen et al. 2012).

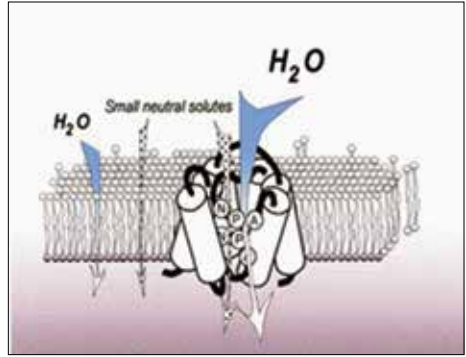


Fig. 2. Model of a water channel protein (AQUAPORIN) located in the lipid bilayer of cell membrane (from Maurel and Chrispeels 2001).

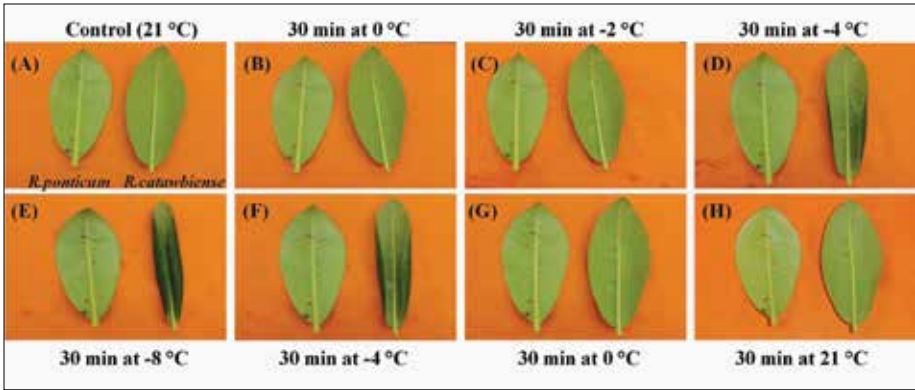


Fig. 3. Comparison of curling or non-curling behavior in the leaves of *R. catawbiense* and *R. ponticum* during a freezing (A-E) and re-warming (F-H) cycle. (adapted from Chen et al. 2013)

Results

•Extracellular freezing is required for thermonastic leaf curling in *R. catawbiense*:

To determine the relationship between extracellular freezing and leaf-curling, we monitored leaf-curling in *R. catawbiense* with or without controlled ice-nucleation. Our results indicate that extracellular freezing may be required for leaf curling.

•Ice-nucleation (extracellular freezing) temperatures for *R. catawbiense* and *R. ponticum* were different:

Ice-nucleation temperature in *R. catawbiense* leaves ranged from -1.2 to -2.7° C, while for *R. ponticum* it spanned -1.6 to -3.8° C. Within the ice-nucleation temperature range, the median, 25 and 75 percentile points for *R. catawbiense* were -1.9, -1.7, and -2.3° C, respectively; and for *R. ponticum*, at -2.5, -2.2, and -3.1° C, respectively. The mean ice-nucleation temperature was -2 and -2.5° C in *R. catawbiense* and *R. ponticum*, respectively:

•*RcPIP2s*' expression during freezing / leaf-curl and re-warming/ uncurling similarities or contrasts between the two species:

Both species exhibited lower *PIP2s*' expression when transferred from 21 to 0° C, a likely chilling response, as has been widely reported in the literature. However, the expression of *RcPIP2s* (*R. catawbiense* AQPs) and *RpPIP2s* (*R. ponticum* AQPs) increased as tissues were further cooled. This increase coincided approximately with the temperatures that fell in the ice-nucleation temperature ranges for each species: about -1.2 to -2.7° C for *R. catawbiense*, and -1.6 to -3.8° C for *R. ponticum*. We believe this increased expression to be associated with the exit of bulk water across the cell membranes due to the desiccating effect of extracellular freezing that formed due to ice-nucleation. Subsequently, *RcPIP2s* expression progressively decreased till -8° C. On the other hand, *RpPIP2s*' expression

progressively increased with cooling and reached its maximum expression at -8°C . During re-warming / uncurling, *RcPIP2s* still maintained a low expression when samples reached 0°C , followed by substantial increase at 21°C . In *R. ponticum*, *RpPIP2s*' expression progressively decreased during re-warming.

Discussion and Conclusions

The contrasting leaf-curling behavior may be reconciled by the presence of different strategies to tolerate / resist cellular dehydration by the two species, and we propose that differential behavior of *PIP2* expression may be one of those strategies. Our previous observations on the stomatal pore opening / leaf area had suggested that *R. catawbiense* leaves may be more prone to desiccation than *R. ponticum* (Wang et al. 2008) Presumably, repression of *RcPIP2s* under deeper freezing (-8°C) may be one of the adaptive strategies to retard the loss of cellular water in *R. catawbiense*. And the recovery in *RcPIP2s* expression when *R. catawbiense* leaves were re-warmed was perhaps required to facilitate the influx / re-entry of thawed water in the cells driving the leaf uncurling.

It has been proposed that leaf curling in rhododendrons occurs due to a "selective turgor loss" in those cells that make up the lower leaf surface, presumably resulting from water redistribution. It has also been demonstrated that under water stress, *R. ponticum* had a greater cellular water fraction than did *R. catawbiense*, suggesting a more efficient mechanism for turgor maintenance in *R. ponticum* under water deficit conditions (Nilsen 1991). An increased expression of *PIP2s* in *R. ponticum* leaves when cooled to -8°C may potentially be needed for such water redistribution among differentially dehydrating cells. As the freeze-desiccation is relieved during re-warming, it might be unnecessary in *R. ponticum* to keep *RpPIP2s* at the highly expressed level (as occurred at -8°C), hence they are repressed.

While our observations from the comparative study of a pair of *Rhododendron* species with contrasting leaf-curling behavior indicate a potential association between *PIP2s* expression and freeze-induced leaf curling, more rigorous studies are warranted to further elucidate its cellular mechanism. For example, it is important to note that "water channel activity" of these aquaporins was not measured in this study; only expression of genes that produce the proteins was determined. We also noted that extracellular freezing may be a pre-requisite for leaf-curling in *R. catawbiense* and found an association between altered *PIP2* expression and cell water relations during freeze-thaw in the two species. An in-depth investigation involving AQP activity measurements and changes at protein as well as gene level corresponding to the upper and lower leaf surfaces may provide further insights into the definitive role of AQPs in leaf curling in *Rhododendron*. An alternative hypothesis that the thermonastic / non-

thermonastic behavior of *R. catawbiense* and *R. ponticum*, respectively, may be explained by specific anatomical features, including cell-wall structure (Nilsen 1992) also deserves due attention.

Acknowledgements

This research was supported, in part, by a grant from the Research Foundation of the American Rhododendron Society and by Hatch Act and State of Iowa Funds.

Literature Cited

- Azad, A.K., R. Hanawa, T. Ishikawa, Y. Sawa, and H. Shibata. 2013. Expression profiles of aquaporin homologues and petal movement during petal development in *Tulipa gesneriana*. *Physiol. Plant.* 148: 397-407.
- Chen, K., A. Fessehaie, and R. Arora. 2012. Selection of reference genes for normalizing gene expression during seed priming and germination using qPCR in *Zea mays* and *Spinacia oleracea*. *Plant Mol. Biol. Rep.* 30: 478-487.
- Chen, K., X. Wang, A. Fessehaie, Y. Yin, X. Wang, X. and R. Arora. 2013. Is expression of aquaporins (*plasma membrane intrinsic protein 2s, PIPs*) associated with thermonasty (leaf-curling) in *Rhododendron*? *J. Plant Physiol.* <http://dx.doi.org/10.1016/j.jplph.2013.05.007>
- Hachez, C. E. Zelazny, and F. Chaumont. 2006. Modulating the expression of aquaporin genes in planta: a key to understand their physiological functions? *Biochim. Biophys. Acta* 1758: 1142-1156.
- Heinen, R.B., Q. Ye, and F. Chaumont. 2009. Role of aquaporins in leaf physiology. *J. Exp. Bot.* 60: 2971-2985.
- Henzler, T., Q. Ye, and E. Steudle. 2004. Oxidative gating of water channels (aquaporins) in *Chara* by hydroxyl radicals. *Plant Cell Environ.* 27: 1184-1195.
- Javot, H. and C. Maurel. 2002. The role of aquaporins in root water uptake. *Ann. Bot.* 90: 301-313.
- Kaldenhoff, R. and M. Fischer. 2006. Aquaporins in plants. *Acta Physiol.* 187: 169-176.
- Maurel, C., L. Verdoucq, D.-T. Luu, and V. Santoni. 2008. Plant aquaporins: membrane channels with multiple integrated functions. *Ann. Rev. Plant Biol.* 59: 595-624.
- Nilsen, E.T. 1987. Influence of water relations and temperature on leaf movements of *Rhododendron* species. *Plant Physiol.* 83: 607-612.
- Nilsen, E.T. 1991. The relationship between freezing tolerance and thermotropic leaf movements in five *Rhododendron* species. *Oecologia* 87: 63-71.
- Nilsen, E.T. and A. Tolbert. 1993. Does winter leaf curling confer cold stress tolerance in *Rhododendron*? *J. Amer. Rhododendron Soc.* 47: 98-104.

- Maurel, C., and M.J. Chrispeels, 2001. Aquaporins. A molecular entry into plant water relations. *Plant Physiol.* 125: 135-138.
- Nilsen, E.T. 1992. Thermonastic leaf movements: a synthesis of research with *Rhododendron*. *Bot. J. Linnean. Soc.* 110: 205–233.
- Peng, Y., R. Arora, G. Li, G., X. Wang, and A. Fessehaie. 2008. *Rhododendron catawbiense* plasma membrane intrinsic proteins are aquaporins, and their over-expression compromises constitutive freezing tolerance and cold acclimation ability of transgenic *Arabidopsis* plants. *Plant Cell Environ.* 31: 1275–1289.
- Russell, R.B., T.T. Lei, and E.T. Nilsen. 2009. Freezing induced leaf movements and their potential implications to early spring carbon gain: *Rhododendron maximum* as exemplar. *Functional Ecology* 23: 463-471.
- Schäffner, A.R. 1998. Aquaporin function, structure, and expression: are there more surprises to surface in water relations? *Planta* 204: 131-139.
- Wang, X., R. Arora, H.T. Horner, and S.L. Krebs. 2008. Structural adaptations in overwintering leaves of thermonastic and non-thermonastic *Rhododendron* species. *J. Amer. Soc. Hort. Sci.* 133: 768-776.
- Wang, X., Y. Peng, J.W. Singer, A. Fessehaie, S.L. Krebs, and R. Arora. 2009. Seasonal changes in photosynthesis, antioxidant systems and *ELIP* expression in a thermonastic and non-thermonastic *Rhododendron* species: a comparison of photoprotective strategies in overwintering plants. *Plant Sci.* 177: 607–617.
- Wei, H., A.L. Dhanaraj, R. Arora, R., L.J. Rowland, F. Fu, and L. Sun. 2006. Identification of cold acclimation-responsive *Rhododendron* genes for lipid metabolism, membrane transport and lignin biosynthesis: importance of moderately abundant ESTs in genomic studies. *Plant Cell Environ.* 29: 558–570.
- Wei, H., A.L. Dhanaraj, L.J. Rowland, Y. Fu, S.L. Krebs, and R. Arora. 2005. Comparative analysis of expressed sequence tags (ESTs) from cold-acclimated and non-acclimated leaves of *Rhododendron catawbiense* Michx. *Planta* 221: 406–416.

Note:

The manuscript submitted to the J. Plant Physiology also had the data from dehydration and rehydration cycle experiments in addition to freezing and re-warming, hence it had additional information. Project funding by the ARS Research Foundation only supported the freezing/re-warming experiments.

Initial Impressions of INKARHO® Rootstock

Stephen Krebs
David G. Leach Research Station
The Holden Arboretum
Kirtland, Ohio



Rhododendrons, like many members of the heath family *Ericaceae* prefer well-drained acid soils for optimal growth. A soil pH in the range of 4.5 to 5.5 is generally considered suitable for growing most rhododendrons (Leach, 1962; Cox, 1993). Acid soils are absent in many temperate zone growing regions that are otherwise suitable for rhododendron culture, thus limiting the landscape use of these plants. As a result, there has been considerable interest in identifying *Rhododendron* species with higher pH tolerance as well as breeding “lime tolerant” rhododendrons.

Much of the early interest in higher pH adaptation originated among rhododendron growers in Germany. Heiler (1964) suggested that pH tolerance could be inherited, and noted the superiority of *R. ‘Cunningham’s White’* as a lime-tolerant rootstock compared to *R. ponticum* which had been used extensively in earlier graft propagation protocols. By the 1980s, researchers at the German Federal Centre for Breeding Research on Cultivated Plants at Ahrensberg had developed seedling screening methods to identify individuals from breeding populations with improved tolerance to alkalinity and high salt levels (Priel and Ebbinhaus 1994). Reciprocal crosses between *R. ‘Cunningham’s White’* and *R. fortunei* produced the best performing offspring, and an elite group of these were put into rootstock trials, ultimately resulting in a proprietary rootstock adapted to near neutral soils (pH 7.0) and trade named INKARHO (Interessengemeinschaft Kalktolerante Rhododendron).

INKARHO rootstock is widely offered by nurseries in the U.K and Europe. The rootstock is rarely available in the U.S., even though there are many regions here, such as the Midwest, that might benefit greatly from its use due to the prevalence of more neutral soils. This difference in availability might be due to the product’s relative newness, but it could also reflect the fact that few U.S.

nurseries propagate rhododendrons by grafting, a practice which is still common in Europe and essential for INKARHO production. Use of the rootstock in the U.S. would also add a range of climatic conditions and preferred scions (cultivars popular in this country that would be grafted onto INKARHO) that may not have been previously evaluated in Europe.

In 2008, an opportunity to trial the rootstock arose when it was offered by Van Veen Nursery, which acquired them from Dieringer Nursery, a licensed INKARHO producer in Oregon. I was able to purchase a small number (three to four) of cultivars on both their own roots and grafted onto lime-tolerant rootstocks (INKARHO #10 and #37). In June 2008, I planted 1 gallon (3.8 l) container size replicates of *R.* 'Calsap', *R.* 'Goldflimmer', *R.* 'Holden', and *R.* 'Joe Paterno'* into a randomized row at Holden Arboretum's Lower Baldwin field site in Kirtland, Ohio. The soil at this site is classified as Conotton Loam (CxA), a gravel loam with a pH of 6.0. The area is fenced against deer and drip irrigation is available as needed. Composted hardwood chips were added annually to control weeds and soil moisture, and glyphosate herbicide was applied in spring and mid-summer to further suppress weed establishment. The plants were fertilized annually in early spring with a 50% slow release fertilizer (18-5-9) at a rate of 1 kg/100 m².

Plant performance was assessed in fall 2012, approximately four years post-transplanting. A non-quantitative visual rating was used to categorize plants into performance categories—excellent, good, fair, poor, and dead (Figures 1 and 2). Traits such as overall size (relative to other plants of the same cultivar), leaf retention and color, and branch dieback were used to assign an aggregate rating. The results are summarized in Tables 1 and 2. Overall, plants on the lime-tolerant rootstock performed better than on their own roots, exhibiting increased survivorship and vigor. About 87% of the INKARHO rootstock plants (13/15) were rated with good to excellent vigor, compared to 47% of the self-rooted cultivars (7/15, Table 2). Over 27% of the self-rooted plants died after four years of field culture, but all the rootstock-grafted material survived. Differences among cultivars were observed; the beneficial effects of the rootstock appeared most pronounced in *R.* 'Joe Paterno'* and *R.* 'Goldflimmer', and less dramatic in *R.* 'Calsap' and *R.* 'Holden' (Table 1).

The large difference in mortality between self-rooted (27%) and INKARHO grafted (0%) cultivars suggests that there may be some disease resistance in the rootstock, in addition to its reported pH and salt tolerances. Evaluation rhododendrons at the Lower Baldwin site usually die with symptoms (leaf curling, drooping, and crown tissue necrosis) consistent with root rot disease caused by *Phytophthora cinnamomi*, a common cause of mortality wherever these plants are grown. Northeast Ohio experienced record rainfall in 2011,

Table 1. Field performance of four self-rooted rhododendron cultivars compared to the same genotypes grafted onto INKARHO® rootstock. Numbers indicate how many plants were assigned to each vigor category. Observations were made on plants in the Fall, 2012, four years post-planting.

Cultivar	Roots	E	G	F	P	D
'Calsap'	self	1		2		1
'Goldflimmer'	self		1		1	1
'Holden'	self	2	1	1		
'Joe Paterno' *	self		2			2
'Calsap'	INKARHO	2	1	1		
'Goldflimmer'	INKARHO		2	1		
'Holden'	INKARHO	3	1			
'Joe Paterno'*	INKARHO	3	1			

E = excellent vigor, G = good, F = fair, P = poor, D = dead plant

which could have promoted pathogen development and dispersal of infectious zoospores. The source of root rot resistance in INKARHO, if in fact present, is a mystery, since the parent plants in the rootstock breeding program (*R. fortunei* and *R. 'Cunningham's White'*) are both reported as susceptible (Hoitink and Schmitthenner 1975). However, *R. fortunei* is a highly variable and widely distributed species, so it may be that the source used by the German researchers was more resistant than the small seedling population tested above. Although INKARHO disease resistance is mentioned in some of the online discussions of this product, no specific disease is mentioned and there are no published data to support this claim. A conclusive test of root rot disease resistance in INKARHO could be accomplished by inoculating containers of self- and INKARHO-rooted cultivars with *P. cinnamomi* under controlled greenhouse conditions.

Few of the plants in this trial grew into fine specimens characterized by dense growth and excellent leaf quality. Many vigorous plants had somewhat low, open

Table 2. Root treatment comparisons of the percentage of total plants (n=15) in each vigor category.

Vigor Category	Self-Rooted (%)	INKARHO® rootstock (%)
Excellent	20.0	53.3
Good	26.7	33.3
Fair	20.0	13.4
Poor	6.6	0
Dead	26.7	0

growth habit (especially *R.* ‘Holden’ and *R.* ‘Goldflimmer’), lacked second year leaf retention, or exhibited leaves with photo-bleaching (yellowing along the midrib). These outcomes may have resulted in part from environmental factors independent of the rootstock effect. The conditions at Lower Baldwin probably represent the most climatically severe test of INKARHO to date, because northern Europe does not have the continental climate of the Midwestern U.S. In addition to the site’s full sun and wind exposure, 2009-2012 temperatures ranged from average winter minimums of -21.4° C (-17.4 to -25.2° C range) (-6.5° F; -0.7 to -13.4° F range) to average summer maxima of 33.8° C (31.9 to 35.3°C range) (92.8° F; 89.4 to 95.5° F range). In addition, record rainfall occurred during the 2011 growing season, and the first half of the 2012 growing season was characterized by very hot and dry conditions.

The generally positive results of this study (increased survivorship with INKARHO under challenging conditions) should be tempered by its small scale and the qualitative criteria used for comparisons. Furthermore, another study has indicated that INKARHO does not result in better performance compared to more traditional rootstock. A long-term trial at Garden Wisley (Woking, England) conducted by the Royal Horticulture Society compared multiple “cultivar × root” combinations (INKARHO, *R.* ‘Cunningham’s White’, and self-rooted) in field plots that were chemically adjusted to a pH range of 5.0 to 8.0. After five years, an interim study (Alexander 2008) found that “cultivars on INKARHO rootstock do not show improved tolerance in



Figure 1. (A) 'Holden' grafted onto INKARHO (rating = good) and (B) self rooted (rating = poor)



Figure 2. (A) 'Calsap' self rooted (rating = fair) and (B) grafted onto INKARHO (rating = good).

soils with elevated pH [8.0] while the ‘Cunningham’s White’ rootstock appears slightly more deserving of its naturally lime tolerant reputation.” The basis for comparisons of plant health in this research were SPAD units, a measure of leaf chlorophyll content, and future analysis of this trial will include intermediate pH tests [6.0-7.0] as well as shoot biomass comparisons of “different root × pH” combinations (Alexander 2008).

INKARHO rootstock may well have a future in the U.S., particularly if it can be demonstrated that it increases the success rate of rhododendrons by enabling difficult plants to perform better when grafted, or if the rootstock is able to expand the geographic range (and market) of rhododendrons into more marginal conditions. Because the green industry preference in this county is for propagation via self-rooting, however, there might only be a niche market for grafted rootstock. My main concern with this rootstock in the U.S. is that a marketing campaign might precede any independent evaluation of its merits over a range of North American climates. More field trials could address this concern, and it would be better for gardeners to receive a tested and proven plant than to become the testers themselves.

*Name not registered

References

- Alexander, P. 2008. Are INKARHO rhododendrons more lime tolerant than traditional calcifuge rhododendrons? *SEESOIL* 17: 8-17
- Cox, P.A. 1993. *The cultivation of rhododendrons*. B.T. Batsford, Ltd (London)
- Heiler, F. 1962. There are also lime tolerating rhododendrons. *Quart. Bull. American Rhodo. Soc.* 16: 1-7.
- Hoitink, H.A. and A.F. Schmitthenner. 1975. Resistance of *Rhododendron* species and hybrids to Phytophthora root rot. *Quart. Bull. American Rhodo. Soc.* 29: 37-41.
- Leach, D.G. 1961. *Rhododendrons of the World*. Charles Scribner’s Sons (New York)
- Preil, W. and R. Ebbinghaus. 1994. Breeding of lime tolerant *Rhododendron* rootstocks. *Acta Horticulturae* 364: 61-70.

Acknowledgements

I thank Kathy Van Veen and Jeff Dieringer for reviewing this article.

Nomenclatural Codes Belong in Your Toolbox

Donald H. Voss
Vienna, Virginia



It is likely that the reader has encountered nomenclatural problems relating to plants. Different names for a given plant; different plants with a given name; and variant practices for trademarks, trade designations, and plant-patent names have led to confusion and error. We can avoid compounding the errors by learning and

applying basic rules that are available in the codes governing nomenclature of plants in nature and plants in cultivation. Correct identification and naming are important to advances in plant science and ecology. How useful is a phylogenetic tree if plants included in the analysis are incorrectly identified? How effective are conservation lists or invasive plant lists if the wrong names are listed?

As the body of knowledge relating to plants—and the proliferation of plant names—expanded from the time of Theophrastus in ancient Greece through Roman times and into the Middle Ages, the focus was increasingly on identification and description of medicinal plants. Before the starting point of modern plant nomenclature, *Species Plantarum* (Linnaeus 1753), phrase-names were used to identify and distinguish plants. These tended to produce nomenclatural chaos not only because of their length but also because of the need to re-draft them when new species with common characteristics were added to a genus (or varieties to a species). Fortunately, Linnaeus also included “trivial” epithets for the species he described, and these became the basis for modern binomial names (genus name + specific epithet; e.g., *Rhododendron ferrugineum*).

Despite the simplification introduced by general adoption of binomial nomenclature, botanists continued to create new Latin scientific names for plants already named as well as for the increasing flood of new taxa arriving from plant exploration, especially from the Orient. In 1867, an international botanical congress in Paris adopted rules to govern the creation and use of Latin scientific names for plants. These rules were based on the *Lois de la Nomenclature Botanique* drafted by Alphonse de Candolle. In the English edition, the introduction summarizes various practices that made adoption of a code necessary (de Candolle 1867). Many provisions of today’s *International Code of Nomenclature for algae, fungi and plants* (Melbourne Code; ICN) (McNeill et al.

2012) can be clearly traced to the 1867 *Lois*.

Cultivated plants have a long and troubled history of receiving multiple or confusing names in modern languages. Cultivated varieties (now referred to as cultivars) may arise in many ways; in *Rhododendron* the primary mode of origination is hybridization. To provide rules that would standardize the naming of cultivars, the Cultivated Plant Code was created in 1953. Now in its eighth edition, the *International Code of Nomenclature for Cultivated Plants* (Brickell et al. 2009; ICNCP) provides a “precise, stable, and internationally recognized system for naming plants in cultivation.” It states that taxa governed by the code may bear only one accepted name (based on priority of publication), that the names must be “universally and freely available for use,” and that trade designations as marketing devices are not regulated by the code (although correct use of trade designations is described).

Whether you are naming a new plant, preparing display labels or catalog listings, or communicating nomenclatural information in an article or lecture, make use of resources readily available—the ICN for Latin scientific names of plants and the ICNCP for plants in cultivation! Yes, effort is required: the sections dealing with Rules and Recommendations in the ICN occupy 149 pages; in the ICNCP, 57 pages. Realistically, very few will attempt to read the codes (it is tempting to describe them as soporific but in fact they are complex). Many who should follow correct nomenclatural practice can find assistance by consulting the many examples shown in the codes. As noted in the References below, both codes are available on the Internet. For the ICN, one selects a starting point and then may proceed up or down, page by page—or choose another starting point. The ICNCP can be viewed by scrolling from beginning to end (in addition to the Rules, Appendixes VII – X are often helpful in dealing with nomenclatural issues).

With respect to Latin scientific names of plants, the ICN contains two major rule changes. As of 1 January 2012, effective publication of new names may be accomplished through electronic publication—subject, of course, to specified rules. For names published on or after 1 January 2012, the description and/or diagnosis must be written in English or Latin (since 1935, Latin had been required). In addition, an effort was made to bring together rules relating to certain issues, particularly those relating to valid publication of names. Although these changes will be generally considered as progress, the layman is likely to find the code abstruse, and even plant scientists often turn to colleagues more experienced in nomenclatural matters for interpretation of the rules. To assist others in applying the rules governing the Latin names, Dr. Nicholas Turland, Secretary of the Editorial Committee that revised the ICN, has written an introductory volume entitled *The Code Decoded*, published in April 2013.

Why is learning the rules of botanical nomenclature like learning another language? For the same reason I told Economics 101 students that learning economics is like learning another language: familiar words often have new, strange meanings. In botanical nomenclature, for example, a Latin scientific “name” exists only if it was published in compliance with the rules of the ICN; otherwise, what we laymen think of as a name is a “designation.” (Similarly, under the ICNCP, a “name” for a cultivar exists only if it conforms to code rules.)

Those interested in an introduction to botanical nomenclature may find *The Code Decoded* useful for a “101” course. Begin with the introduction, chapter 2 on basic concepts and terms, and chapter 3 on the structure of the code (as of September 2013, the second volume mentioned had not been published). Then skip to chapters 9 and 10, which deal with citation of authorship and spelling of plant names. Chapter 6, on finding the correct name for a taxon, and the section on hybrid names in chapter 11 complete my concept of the “101 course.” The remainder of the book treats essential but more advanced aspects of the code. At all stages of the learning process, the list of abbreviations, acronyms, symbols, and Latin words will be of assistance in understanding examples in the book, in the ICN, and in other literature consulted.

References

- Brickell, C.D., Alexander, C., David, J. C., Hettterscheid, W. L. A., Leslie, A. C., Malecot, V., Xiaobai Jin, Cubey, J. J. 2009. *International Code of Nomenclature for Cultivated Plants* (ICNCP or Cultivated Plant Code), 8th ed. Regnum Vegetabile 151. Leuven, Belgium: International Society for Horticultural Science. 184 pp. www.actahort.org/chronica/pdf/sh_10.pdf.
- De Candolle, Alphonse. 1867. *Lois de la Nomenclature Botanique*. See English translation by H.A. Weddell: *Laws of botanical nomenclature adopted by the International Botanical Congress held at Paris in August 1867, together with an historical introduction and commentary*. London: L. Reeve. 72 pp. www.biodiversitylibrary.org/item/117841#page/51/mode/1up
- Linnaeus, Carl. 1753. *Species Plantarum* Vol. 1. Facsimile edition for the Ray Society (with introduction by W. T. Stearn). London: British Museum (Natural History). 1957. 560 pp.
- McNeill, J., Barrie, W. R., Demoulin, V., Greuter, W., Hawksworth, D. L., Herendeen, P. S., Knapp, S., Marhold, K., Prado, J., Prud'homme van Reine, W. F., Smith, G. F., Wiersema, J. H., Turland, N. J. 2012.). *International Code of Nomenclature for algae, fungi and plants*. Regnum Vegetabile 154. Königstein, Germany: Koeltz Scientific Books. 208 pp. www.iapt-taxon.org/nomen/main.php.
- Theophrastus. *Enquiry into Plants* (2 vols.). With Engl. transl. by Sir Arthur Hort. Loeb Classical Library. Cambridge, MA: Harvard University Press. 475+499 pp.
- Turland, Nicholas. 2013. *The Code Decoded: A user's guide to the International Code of Nomenclature for algae, fungi and plants*. Regnum Vegetabile 155. Königstein, Germany: Koeltz Scientific Books. 169 pp.

Don Voss is a member of the Potomac Valley Chapter and a frequent contributor to the Journal.

Letter to the Editor

EDITOR:

Correct Usage of the Terms Indumentum and Tomentum

There is a problem with the usage of the word indumentum in the Journal. In “rhodie-speak,” it is almost always used to describe the densely matted hairs on the abaxial [bottom] side of the leaves. In botanical works, indumentum is used in a much broader sense:

1) epidermal appendages of a plant or an organ considered collectively (Gleason and Cronquist 1991), and

2) any hairy covering or pubescence (Gray 1908).

Tomentum is described as:

1) dense covering of matted hairs (Rehder 1954),

2) indument of crooked, matted or tangled hairs (Gleason and Cronquist 1991), and

3) closely implexed wooly hair (Gray 1908).

Similar definitions can be found in botanical dictionaries.

For ARS purposes we are stuck with near-universal use of indumentum for matted wooly hairs, usually on the abaxial surface of a leaf. But in the future, I believe that we should be cautious in using tomentum (or tomentose, which refers to a dense covering of soft or wooly hairs). In any event, there is no basis in botanical usage to limit indumentum to the abaxial surface of leaves. It also appears on the adaxial (top) surfaces, and on various other organs of the plant. Whether the indumentum is dense or sparse, hairy or scaly, one color or another, these require other descriptors.

References

- Gleason, H.A. and A. Cronquist. 1991. *Manual of the Vascular Plants of Northeastern United States and Adjacent Canada, Second Edition*. The New York Botanical Garden Press, N.Y.: 910 pp.
- Gray, A. 1908. *Gray's New Manual of Botany (Seventh Edition - Illustrated) A Handbook of the Flowering Plants and Ferns of the Central and Northeastern United States and Adjacent Canada*. [print of demand reprint of the original book] Nabu Press: 932 pp.
- Rehder, A. 1954. *Manual of cultivated trees and shrubs hardy in North America, exclusive of the subtropical and warmer temperate regions*. The Macmillan Company, N.Y.: 930 pp.

Don Voss, Vienna, VA

[Editors note: Don raises an interesting and good point that we should all be aware of. Usage of terms in “rhodie-speak” is not always in agreement with the more general accepted botanical usage of terms. In Wikipedia, tomentum is defined in botany as a covering of closely matted or fine hairs on plant leaves, whereas an indumentum is a covering of fine hairs (or trichomes, i.e., epidermal outgrowths of various kinds) on a plant. In plants, the recognized indumentum types are: pubescent, hirsute, pilose, villous, tomentose, stellate, scabrous, or scurfy.]

Bless This Mess: How Being Less Tidy Can Improve the Ecology of Your Garden

Colleen Miko
WSU Extension
Horticulture Educator
Kitsap County, Washington



Bless this mess, I say of my garden as I ignore some weeds, stack up a brush pile, and let debris lie. The more I read about backyard wildlife habitat, the more I understand that a “messy” garden provides shelter and food for wildlife—everything from soil fauna to black bear.

I didn't use to be a *laissez-faire* gardener. A type-A personality, I believed that a tidy garden was a healthy garden: no weeds in sight, detritus banished. Now I know that a balanced garden where disease and pests are kept in check naturally requires a network of creatures that thrive in the presence of debris.

Does your garden have deciduous trees? Lucky you with that free source of mulch. Leaf litter is nature's way of conserving soil moisture, moderating soil temperatures and generating humus. A thick layer of leaves serves as a weed barrier and shelter for overwintering insects and amphibians like salamanders. You don't even need to shred the leaves; songbirds like towhees and juncos will tear at it, looking for a meal. In this way, it's good to be a “litter bug.”

And what of other garden remnants? If it weren't for branches, twigs, bedraggled mops of ornamental grasses, spider webs, and moss in the lawn, birds would lack nesting materials.

Pollinators like bees, butterflies and other insects love weeds whose flowers are rich in pollen and nectar. Allowing parts of our gardens to host non-aggressive weeds—lawns and wilder areas, for instance—provides habitat and gives one more spare time.

This is my second year of leaving garden cleanup until spring. Wow, is that liberating! I used to work in a frenzy in late fall to cut back all the perennials, grasses, and deciduous vines. I took satisfaction in the “clean” beds. Then I read about native bees and other beneficials who overwinter in the hollow stems of tall perennials—insects that don't become active again until late winter or spring. My autumn cleanup was cutting their life cycles short.

The untidiness of delayed cleanup has grown on me. I like to see the seed heads glistening with frost or bobbing under the weight of a feasting bird. Other benefits: decaying foliage protects the crowns from cold, acts as a weed barrier, and improves soil fertility.

Tree snags are a reminder of the cycle of life: from death springs life. Bees, songbirds, some species of bat, and other creatures are housed and fed in dying and dead trees. If you leave snags, branches, cones and needles, they'll eventually break down into fertile, well-draining soil teaming with the microorganisms that feed plants and wildlife.

It's true that both beneficial and not-so-beneficial creatures will take advantage of suitable habitat. One does need to watch for slugs and rodents who nibble on plants, out of sight. And the foliage of diseased plants should be removed to prevent further infestation. But the eventual goal is an ecologically balanced garden that attracts amphibians, reptiles, birds, and mammals who will feed on the slugs, rodents and other "sometime pests" that all have a place in the "messy" garden.

Reprinted with permission from Seeds for Thought, a newsletter from the Master Gardener Foundation of Washington State, and the author.

Master Gardener Program

The purpose of the WSU Extension Master Gardener Program is to train volunteers to be effective community educators in gardening and environmental stewardship. Master Gardeners provide information generated from research at WSU and other university systems.

Today's Master Gardener volunteers teach local community members to: manage their gardens and landscapes in a science-based, sustainable manner; address environmental and social priorities such as water conservation and water quality protection; reduce the impact of invasive species; and increase public awareness of healthy living through gardening.

MGs also enhance communities through demonstration gardens and donation of produce to local food banks. Low-income citizens learn to grow their own food and become more self-sufficient with the help of Master Gardeners. Whatever the priority need may be, if it can be addressed through gardening, WSU Extension Master Gardener volunteers are there to serve as part of the solution.

The WSU Extension Master Gardener Program is open to everyone with an interest in gardening and a willingness to use their knowledge, experience and enthusiasm to make a positive impact on their local community.

WSU Extension Master Gardener Program: Volunteer Community Educators — cultivating plants, people, and communities since 1973

SOCIETYNEWS

Awards

CALIFORNIA CHAPTER

Bronze Medal: Paul Anderson

California Chapter and the entire American Rhododendron Society are fortunate to have you in our organizations. Thank you for sharing your knowledge of rhododendrons, of the areas of the world and conditions in which they grow, and of the people with whom they are associated. You have shared your travel adventures and knowledge by giving us and other chapters many narrated slide programs. You have arranged for our Show Judging for many years. Our greatest honor is having you serve on our Board of Directors and for five years as our Cal Chapter President.

California Chapter is honored to present you with its highest award. June 23, 2012.

Bronze Medal: Christy Hartsell

You have served on our Board of Directors for several years. You have arranged for speakers to give us programs. And you have been a continual help with our annual flower shows and sales. It is difficult to find a more enthusiastic rhododendron grower. You are "Mr. Vireya" to us and other chapters. Thank you for sharing your knowledge of vireyas and for sharing your plant material with your fellow members, and especially for your wonderful presence at Cal Chapter.

California Chapter is honored to present you with its highest award. June 23, 2012.

COWICHAN VALLEY

Bronze Medal: David Annis

It is with great pleasure that the Cowichan Valley Rhododendron Chapter presents David Annis with the Bronze Medal, the highest medal a chapter can bestow. He is celebrating two anniversaries with us this year. Along with our Chapter's 25th Anniversary David has been a member for the past 20 years. He began volunteering in the Library in the early '90s, moving on to be responsible for Membership and taking over as Treasurer in the late '90s. He served as President in the years 2009 and 2010. As well as serving in these formal roles he participates with organizing and executing our plant sales, Christmas party, fills in as tea convener, volunteers and lends a hand in all activities and events organized within the club. David has been generous with his time and sharing of his knowledge and expertise in all aspects of the club over the past 20 years.

Bronze Medal: Bill Dumont

It is with great pleasure that we present the Bronze Medal to Bill Dumont for his outstanding contributions to the Cowichan Valley Chapter. Bill has been a member since 2005. He has held numerous positions on the executive and is currently wearing the hat of Treasurer. Under his guidance, the financial state of the society will be the best since the 2000 Conference. Bill has been instrumental in developing and coordinating our successful annual Garden Fair. He is responsible for organizing the greatest Rhododendron Bus Tours. We have travelled to fabulous gardens, both public and private on Vancouver Island, the Mainland and Washington State. Bill is an excellent cook. He caters and serves the tour members picnic lunches that are worthy of awards in their own right. He volunteers tirelessly for the club. He and his wife have shared their home and garden for club picnics and garden tours.

SOCIETYNEWS

Bill has given generously of his time and expertise and contributed to enriching our club in so many ways.

MAINE CHAPTER

Bronze medal: Jerry Goodall

The Maine Chapter is pleased to award Jerry Goodall with the Bronze Medal in recognition of his many years of support and service to our Chapter.

Jerry and his wife Mary joined the Chapter in the 1990s. He has been an active participant in the Chapter's activities since. He worked to make the Display Garden at the USM Stone House a success, and when that venue was no longer available, he was a prime mover in bringing the Garden to the USM Gorham Campus Arboretum.

Jerry has served on the Board of Directors almost since he became a member, and he has served as both President and Vice-president. It seems that Jerry has been behind many of the new ideas that have been undertaken by the Chapter. He is always ready with suggestions for ways to run a truss show, or get new members. His dedication has contributed enormously to keeping our Chapter alive and kicking. For his untiring work on behalf of the Maine Chapter of the American Rhododendron Society we are most grateful.

MOUNT ARROWSMITH

Bronze Medal: Tony Ansdell

This is in recognition of Tony's long-standing service to MARS. Since he joined many years ago, he has been a cheerful, willing volunteer and worn many hats. He has been newsletter editor, membership chair and treasurer. He has served on several committees, including the annual Truss Show and Garden Tour, where he has helped out wherever asked. He was President for three years. As well, he has represented MARS at several external functions, including the newly launched Species Garden Initiative and District One meetings where he is treasurer. With great pleasure, we recognize this outstanding service to MARS with the chapter's highest honor, the Bronze Medal.

NORTH ISLAND

Bronze Medal: Pauline Thompson

Pauline has served on the Executive since 2008 as a Director and Secretary. Her knowledge of horticulture and her skills in administrative management and group governance have been of significant benefit to the club. Pauline has taken a lead role in a number of special projects, organized member bus tours, been a regular at our work parties and events, and has been available whenever needed. We congratulate Pauline on being awarded the ARS Bronze Medal by the North Island Rhododendron Society.

NOYO CHAPTER

Bronze Medal: Dennis McKiver

The Noyo Chapter of the American Rhododendron Society is honored to present its highest recognition, a Bronze Medal, to Dennis McKiver for your commitment to the goals of the chapter.

The purpose of the Noyo Chapter is to promote the study and culture of rhododendrons and to stimulate interest in rhododendrons and your dedication to these goals has been exemplary. Since joining less than 10 years ago you've established

yourself as one of the chapter's most knowledgeable members and you've infused energy into it. You've stimulated interest with articles in the chapter newsletter and the ARS Journal. You've presented programs and provided a mini show at most meetings to demonstrate the vast variety of rhododendrons that can be grown here on the coast. You've readily shared your plants with chapter members. By guiding rhododendron walks at the Mendocino Coast Botanical Gardens you've introduced coastal visitors to the world of rhododendrons.

You've served the Noyo Chapter as a member of the Board of Directors. You've worked on the Show and Plant Sale by helping to organize it and have served as Show Chairman. You traveled to Oregon to get over 500 plants for the Plant Sale and then cared for them for over two months.

In bestowing a Bronze Medal, the Noyo Chapter is honored to acknowledge the commitment of Dennis McKiver as a rhododendron proponent.

In Memoriam

Robert "Bob" Ranville Hart

Bob Hart of Mount Vernon, Washington, passed away Nov. 4, 2012. He was born in 1947, the year after his father, Ranville, had started Hart's Nursery in Skagit County, Washington. Bob was a nursery boy from the start. He took over the nursery in 1974. His enthusiasm for propagating and growing rhododendrons earned him the moniker "Rhody King." He propagated not only the easily propagated rhododendrons but also the rarest of the genus. He expanded the nursery to an 11-acre country garden named La Conner Flats. The garden showcased his rhododendrons as well as his collection of other plants, including roses, conifers, hollies and a vegetable display garden.

Bob accomplished much in his life. He was Skagit County Commissioner, 1992 to 2000; president of Washington State Nursery and Landscape Association, 1993; president of Skagitonians to Preserve Farmland, 2012; and a lifelong teacher of all things horticultural, all while continuing to tend his family's 232 acres of Skagit farmland and maintain La Conner Flats.

Bob was a member of the Komo Kulshan Chapter.

Dave Richard Shepherd

Dave Richard Shepherd, 78, died in Salem, OR, on August 8, 2013, where he and his wife Janet had recently moved to be closer to family. He will be greatly missed by his extended family and many old friends in the Florence, OR, area and new friends at the Willamette Chapter and in Salem, OR.

Dave was almost one of the founding members when he joined the new Siuslaw Chapter in 1972 and has been an active life-long member for 40 years. Dave became chapter president in 1982 and he supported the Board's plan to add an Early Flower Show in April. He helped to start up the April and May Shows in the 1980s, and was well known around town at show times when he visited businesses and collected donations of items for trophies and prizes.

In April and May of 2013, Dave was still busy identifying and classifying entries at the Siuslaw Azalea and Rhododendron Flower Shows in Florence and also helping at the Willamette Chapter Shows.

SOCIETYNEWS

The Siuslaw Chapter awarded Bronze medals in 1999 to both Dave and his wife Janet for long and active service to the Chapter and for generously sharing their knowledge of azaleas and rhododendrons with new and old rhododendron members. Dave worked in the US Postal Service office in Florence for 33 years until his retirement in 2002. His warm and friendly manner kept customers and friends smiling. He was active in various service clubs in his younger years. For several years Dave and his wife Jan operated a small woodland rhododendron and azalea nursery in Florence until 2010 and still found time to enjoy many ARS conferences and assist at the two Western Regional Conferences in Florence OR.

Jenny Velinty

Eleanor Duttweiler Stubbs

Eleanor Stubbs of Portland, Oregon, passed away September 13, 2012, at the age of 93. She was born July 26, 1919, to Rev. Herbert E. and Lydia Duttweiler in Menominee, Michigan.

Eleanor grew up in southern Michigan and played piano for church and other functions. She earned a bachelor's degree in Home Economics at Michigan State. She married Arthur Leisk Stubbs on March 19, 1943, in Marysville, Michigan. Art died in 2002. The couple "kept ship" at Green Bay, Wisconsin, during World War II. In 1949 they moved to Los Angeles. Eleanor earned a master's degree in 1965. She taught Home Economics at South High School in Torrance, California, from 1960 to 1969. The family moved to Oregon where Eleanor was the head of the Home Economics Department at Clackamas Community College until she retired in 1981.

Eleanor and her husband ran Stubbs Shrubs in West Linn and were volunteers at Crystal Springs Rhododendron Garden in Portland. Eleanor consulted on *The Pacific Coast Rhododendron Story* and for *Sunset Western Garden Book*. Eleanor and Art later lived in Milwaukie and enjoyed traveling in the U.S., Europe and New Zealand. She was a lifelong member of the United Methodist Church; member and past-President of United Methodist Women; member, Editor and past-President of the American Rhododendron Society Portland Chapter; and member of both the Azalea Society of America and the Oregon Association of Nurserymen.

Eleanor was president of the Portland Chapter ARS 1988 to 1990; an ARS Bronze Medal recipient in 1991; a member of the committee drafting the Crystal Springs Garden Master Plan; and author of a book on rhododendron shows and judging.

Rhododendron Calendar

- 2014** International Vireya Seminar, Island of Hawaii, HI, Feb. 21–22.
- 2014** ARS Annual Convention, Cleveland, OH, May 16–18. Board Meeting.
- 2014** ARS Western Regional Conference, District 2, Everett, WA. Sept. 26–28.
- 2014** New Zealand Rhododendron Association International Conference, Dunedin, NZ, Oct. 20–25.
- 2015** ARS Annual Convention, 70th Anniversary, Sidney, British Columbia, Canada. May 6–10.
- 2016** ARS/Azalea Society of America Annual Convention, Williamsburg, VA, April 20–24. Board meeting.

ARS Endowment Fund Update

The Endowment Fund for the Society has existed almost as long as the Society. We are fortunate for the foresight of those that created it and those members and friends that have contributed gifts and bequests to it since its origin. In 2003 the Society began its grant program and has continued to award grants to organizations and groups that seek funds in alignment with its the mission and purpose. The grant program was the only use of endowment income for many years. We have been able to make awards every year except 2009 when market conditions severely impacted endowment income.

There are two basic ways of distributing money from the endowment fund: an income only policy or a total return policy. The income policy allows expenditure of money earned on debt (interest) or received as dividends. The total return policy allows both the income earned and capital appreciation to be utilized. The board converted from an income policy to a total return policy in 2010 and also established a spending rule whereby an amount of up to 4% of the rolling three year average of the fund could be dispensed. With this procedure in place, the draw from the fund since this has been in effect, has been no more than 3.5 %

At about the time when this change was made to the total return policy there was concern with how investment was being handled under the responsibility of the Long Term Investment Committee (LTIC). Responding to this concern the LTIC placed the endowment under professional management.

At the end of FY 2004 the endowment was \$572,779. Before the “crash” of 2009, it reached \$658,873 only to lose ground dropping to \$597,138 the following year. Since that time it has appreciated to \$729,972 at the end of the last fiscal year 2012. Clearly the board and the LTIC have been diligent in handling this very important Society asset.

How are we utilizing the endowment returns today? Fiscal year (2012-13) we have a budgeted draw of \$23,000, all of which will go into the general fund. Of this amount, \$4,875 was dispensed in three grants going to the Montreal Botanical Garden (\$2,250), the Planting Fields Arboretum (\$1,875) and the Plant Development Committee of the Mason Dixon Chapter (\$750). For the year, 2013-14, the board has elected to make \$5,000 available for grants.

It has been said when an organization relies on infusions from its endowment to “make ends meet” with the operating budget this is a sign of difficulty. This is where the society stands today. Looking ahead, the board must continue to search and develop ways to reduce expenses and/or increase income from other sources. Ideally, we should not continue to use endowment to balance the Society’s operating budget.

On the inside mailing cover of each Journal issue, there is a form to use for making a gift which can be designated as a memorial or in honor of a special person. In addition, please consider including the Society in your estate planning. The ARS can use your gift to the Endowment Fund in order to maintain its strength and carry out its mission.

GUIDELINES FOR 2014 ENDOWMENT GRANT APPLICATIONS

The Society grant program supports its mission providing grants utilizing funds from its endowment. Activities to be supported may include the development of programs, projects or publications that educate the general public in the growing and culture of rhododendrons. Amount of grants will generally not exceed \$3,000.

Proposals are accepted up to the deadline of February 15, 2014, and must be

SOCIETYNEWS

submitted to the Endowment Fund Committee at the address below. The applicant must notify the appropriate District Director of the application and request a "letter of assessment" to accompany the application. The appropriate District Director is the one whose geographic responsibility includes the location where grant will be utilized. The application and letter of assessment will be reviewed by the Endowment Fund Committee. The Society's Board will act on the committee recommendations at its spring meeting. A successful applicant will be supplied a "Condition of Acceptance" letter and upon its completion and return to the Society, Funds will be sent to the applicant. An unsuccessful applicant will also be notified after the Board meeting.

Proposals should request funding for a single calendar year or less and only one proposal per applicant will be considered. A complete proposal must include:

1) Background and history of the applicant group and the role it provides in the encouragement and understanding of rhododendrons and azaleas. Newsletters and other publications that describe the applicant are welcome. If the applicant has a website, please provide the name of the website.

2) Description of the project and its objective.

3) Statement of how the project fits the interest of the American Rhododendron Society. How does it educate? How many people will be affected?

4) Budget for the project, a timetable for its completion, and a statement of whether partial funding would or would not be useful. Approximately, what percent of the organization/agency budget is the project budget?

5) Listing of the group's current sources of support and income. If the organization/agency files any IRS Form 990, please provide copies of those tax returns for the last two years.

6) List of all sources, from which funds are currently being sought for the proposed project, including any support already confirmed.

7) Letter of assessment from the appropriate District Director.

The application should be sent in an envelope that is no larger than 9" x 12" (23x30 cm). Applications sent by a method that requires signature for delivery, by fax, or by e-mail will not be considered. Generally, only a single copy of the application is required; however, if printed materials or digital photo files are submitted, please provide seven copies. No changes in the budget or nature of the application will be accepted after submission without prior approval from a co-chair of the Endowment Fund Committee. Questions regarding the grant program may be directed to either co-chair of the Endowment Fund Committee, Bill Mangels or Jeff Cheyne.

SOCIETYNEWS

5th International Vireya Seminar February 21 and 22nd, 2014

*Hosted by the Hawai'i Chapter of the American
Rhododendron Society
WWW.HawaiiVireyaARS.org*

Make your winter vacation plans and join us as we learn about the many dimensions of vireya rhododendrons from growers, hybridizers, and modern day plant hunters.

Stay at the Hilo Hawaiian Hotel in Hilo on the Big Island of Hawai'i (the one with the active volcano). It's centrally located right on Hilo Bayfront.

The Seminar will be held at the Kea'au Community Center, just outside of Hilo, the home of the Hawai'i Chapter ARS. We have several internationally renowned speakers lined up, and are working on some very special tours. Come prepared to join us for good food, fun, fellowship and, of course, flowers. Vireya flowers. What more could you ask for?

So instead of freezing all winter, come on over and and spend some time in Hawai'i. Not only is there the seminar but February is right in the middle of whale watching season so be sure to bring your binoculars.

A registration form is posted on the the ARS website (www.rhododendron.org). The form gives information on the cost of hotel rooms (\$103.00 for standard garden view room; \$127.00 for deluxe ocean view room). Activities include a garden tour including lunch, Fri., Feb.21 (\$50); lectures including lunch, Sat., Feb. 22 (\$50); and the Fellowship Barbeque Dinner, Sat., Feb 22 (\$10).



View Online ARS Journal

The ARS Board of Directors authorized the Fall 2012, and subsequent editions of the *Journal American Rhododendron Society*, to be made available in electronic format. ARS members who wish to do so may conveniently view the current issue of the *Journal* via the world wide web. Instructions on how to access the digital edition of the *Journal* are provided below.

A personal log in name and password will be needed to view the online edition of the *Journal*. Members who have not previously obtained a personal login will need to complete a one-time registration at the Office of the ARS website. If you have registered for online access to the ARS membership roster, the same login name and password should be used to view the online *Journal*. For those registering for the first time the steps required are:

1. Open your Internet browser and go to web page: <http://www.arsoffice.org/protect/login.asp>
2. Click on the "Register Now" button.
3. Fill in the required fields in the registration form. Enter your name, a working email address, create a username (minimum of four characters) and password (case-sensitive and a minimum of four characters), and enter your ARS member number and ARS chapter. Your member number can be found printed on the paper wrapper of the *Journal* mailing label for volume 64, number 4, and later issues.
4. Type in the four characters requested in the colored human verification box. This security check prevents bogus registration forms being submitted by spammers.
5. Read and accept the "terms and conditions of use" by checking the box provided.
6. Click the "Register" button.

7. Next you will receive an email message with the subject "American Rhododendron Society On-Line Registration." Open the message and click on the link in the message body. You must complete the email confirmation step in order to verify your registration. **Note:** some email providers may mistakenly place the message in a spam folder so one may need to look for it in this folder if it is not quickly delivered into your normal "in-box".

The electronic edition of the Fall 2013 *Journal* will be available for viewing after November 1, 2013. To view the online *Journal* open your Internet browser and navigate to web page <http://www.arsoffice.org/jars/toc.asp> or click on the "View Online Journal" link on the home page of the Office of the ARS web site. When the Login/Register prompt is displayed, click the "Login" button. Enter your "personal" username and password and click on the "Login" button. **Please note:** login usernames and passwords used by ARS chapters to view chapter reports are different and cannot be used to access the online *Journal*.

The web page that now appears will have links to enable reading the online *Journal*. Links are provided to view the entire *Journal* issue at medium quality resolution, and if desired, to view each of the major articles in the issue at high quality resolution of the photos. Articles with photos are best viewed at high resolution if you want to see close-up detail. All articles are in PDF format and you will need Adobe Acrobat Reader to view them. If you don't already have Adobe Acrobat Reader installed on your computer or digital appliance, you can download a free copy of the software from Adobe's web site. You can save the *Journal* pdfs on your own computer for later viewing at your convenience.

Index

Journal American Rhododendron Society, Volume 67, 2013

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).

Rhododendron cultivar names not registered in the International Register of Plant names and Checklist are marked with an *.

- Adams, Peter. Evolution, Adaptive Radiation and Vireya Rhododendrons - Part II. 2:74-76.
- Addison, Betty Ann. The Honey Trick: A Technique for Overcoming Reluctant Pollination in Rhododendrons. 1:40-41.
- Advantages of Public Choice Voting. Bob and Coleen George. 1:21.
- An Amateur's Research on the Use of LED Lights in Rhododendron Propagation. Mikkel Jørgensen. 3:165-166.
- An Early History of Vireya, The People, Places & Plants of the Nineteenth Century - Part 1. Chris Callard. 4:217.
- Anastis, Cait. Shades of Brilliance: Holden Arboretum's New Rhododendron Garden and Tree Allée. 3:129-130.
- Andrews, Mardi. Hellebores: The Delight of Our Yard. 4:219-220.
- Arora, Rajeev. Summary of 'Cellular Mechanism of Thermo-nasty in *Rhododendron*: Are Membrane Water Channel Proteins (aquaporins) Involved?' 4:196-199.
- ARS Eastern Regional Conference in Nova Scotia. Shelia Stevenson. 1:14.
- ARS Newsletter Contest Results. Shirley Rock. 2:73.
- ARS Photo Contest Winners 2012. 1:18-19, 58.
- Autumn Blooming Rhododendron Cultivars, Hartwig Schepker, 4:194-195.

AZALEA HYBRIDS

- 'Antoinette Martin'. 3:175.
- 'April Show'. 1:42.
- 'Birdie Mae'. 4:230.
- 'Bob Stewart'. 3:175.
- 'Cameo'.
- 'Cape Fear Gold'. 3:175.
- 'Doctor Douglas J. Fisher Junior'. 3:175.
- 'Dreamsicle'. 4:186.
- 'Elsie Lee'. 1:43.
- 'Evelyn Potter'. 4:231.
- 'Golden Flare'. 1:43.
- 'Hampton Ruby Red'. 4:231.
- 'Homebush'.
- 'Irene Koster'. 4:223.
- 'Jeremiah'. 1:43.
- 'Li'l Sister'. 4:232.
- 'Marie Susan Melkovitz'. 3:175.
- 'Martha Hitchcock'. 1:42.
- 'My Li'l Tonto'. 2:18.
- 'Nancy of Robinhill'. 1:42.
- 'Phil Louer'. 3:175.
- 'Rose Greely'. 1:42.
- 'Rose Normandy'. 4:233.
- 'Rosy Frills'. 4:186.
- 'Salmon Sunrise'. 4:186.
- 'Sandra's Harlequin'. 4:186.
- 'Sandra's Pink Sparkles'. 4:234.
- 'Springtime Blush'. 4:186.
- 'Tidewater Firecracker'. 4:234.
- 'White Lights'. 1:43.

AZALEA SPECIES AND SELECTED SPECIES FORMS

R. occidentale. 4:223.

- Band-aids for Boot Blisters: Medical Experiences while Plant-Hunting in Asia, Garratt Richardson, 4:189-191.
- Beaudry, Norman. The ARS Seed Exchange: Growing Rhododendrons from Seed. 22-24.
- Bibliography of A Rhododendron Library - Part I. Clive Justice. 3:167-169.
- Bless This Mess: How Being Less Tidy

- Can Improve the Ecology of Your Garden. Colleen Miko. 4:205.
- Collier, Kath, and Jeff Cheyne. Garden Legacy Collections. 4:187-188.
- Callard, Chris. An Early History of Vireya, The People, Places & Plants of the Nineteenth Century - Part 1. 4:217.
- District 1 Fall 2012 Propagation Workshop Report. Bill McMillan. 3:160-164.
- District 12, American Rhododendron Society. Nicholas Yarmoshuk. 49-51.
- Dr. James Cullen: A Farsighted Taxonomist Who Changed the Way We Look at Rhododendrons. 4:192-193.
- Eastern Regional Conference - Nova Scotia. Sheila Stevenson and Anitra Laycock. 2:107.
- Ernebjerg, Bent. In Search of Rhododendrons in Northwest Burma - One of the Few Gaps in the Rhododendron Map. 3:123-128.
- Evolution, Adaptive Radiation and Vireya Rhododendrons - Part II. Peter Adams. 2:74-76.
- Feller, Bruce. How Does Your Garden Grow? How Do Your Trusses Show? 20-21.
- First Image of a Rhododendron on a Legal-tender Coin. Glen Jamieson. 1:56.
- Fujioka, Frank and Glen Jamieson. Hybridizing for Foliage: III - Rhododendrons with Indumentum and Tomentum. 2:114-115.
- Garden Legacy Collections. Kath Collier and Jeff Cheyne. 4:187-188.
- George, Bob, and Coleen. Advantages of Public Choice Voting. 1:21.
- Groom Early for Bigger and Better Flower Trusses. Dennis McKiver. 1:15-16.
- Hellebores: The Delight of Our Yard. Mardi Andrews. 4:219-220.
- History and Cytological Reassessment of *Rhododendron canadense*. Jason D. Lattier, Thomas G. Ranney, and Nathan P. Lynch. 2:92-98.
- How Does Your Garden Grow? How Do Your Trusses Show? Bruce Feller. 20-21.
- Hyatt, Don. The Big Leaf Rhododendrons. 4:225.
- Hyatt, Don. The Garden Blues: Thoughts on Color. 3:133-134.
- Hybridizing for Foliage: III - Rhododendrons with Indumentum and Tomentum. Frank Fujioka and Glen Jamieson. 2:114-115.
- In Search of Rhododendrons in Northwest Burma - One of the Few Gaps in the Rhododendron Map. Bent Ernebjerg. 3:123-128.
- Initial Impressions of INKARHO®. Stephen Krebs. 4:200-202.
- Jamieson, Glen. First Image of a Rhododendron on a Legal-tender Coin. 1:56.
- Jamieson, Glen. Plant Hardiness Zones. 2:99-106, 119.
- Jamieson, Glen. Specialty License Plate Honoring the Rhododendron will Benefit Nonprofit Gardens in Washington State. 2:71.
- Jones, Dick. Photo 101: Tips re Camera Focusing. 2:72.
- Jørgensen, Mikkell. An Amateur's Research on the Use of LED Lights in Rhododendron Propagation. 3:165-166.
- Justice, Clive. Bibliography of A Rhododendron Library - Part I. 3:167-169.
- Krebs, Stephen. Initial Impressions of INKARHO®. 4:200-202.
- Kupsch, Maurice. The Emu Valley Rhododendron Garden. 3:138-141.
- Lattier, Jason D., Thomas G. Ranney, and Nathan P. Lynch. History and Cytological Reassessment of *Rhododendron canadense*. 2:92-98.
- Leslie, Alan. Notes from the International Rhododendron Registrar 2012. 4:228-229.
- Luck, Dennis MacMullan. 3:158-159.
- Macdonald, Brenda. Rhododendron Growing in a 'Mediterranean' Climate: the British Columbia Experience. 2:70.
- MacMullan, Dennis. Luck. 3:158-159.
- Maddenia Rhododendrons on the West Coast. Mike McCullough. 1:3-8.

McCullough, Mike. *Maddenian Rhododendrons on the West Coast*. 1:3-8.

McDonald, Sandra. *Middle Atlantic Chapter Works to Place Rhododendrons and Azaleas in the Public Eye*. 4:183-185.

McKiver, Dennis. *Groom Early for Bigger and Better Flower Trusses*. 1:15-16.

McKiver, Dennis. *Pruning*. 1:52-53.

McMillan, Bill. *District 1 Fall 2012 Propagation Workshop Report*. 3:160-164.

Middle Atlantic Chapter Works to Place Rhododendrons and Azaleas in the Public Eye. Sandra McDonald. 4:183-185.

Miko, Colleen. *Bless This Mess: How Being Less Tidy Can Improve the Ecology of Your Garden*. 4:205.

Miller, Ron. *Stalking the Wild Lepidote: Rhododendron minus Reconsidered*. 2:63-68, 78-83.

Montgomery, Betty. *Isn't just for Spring*. 2:84.

Nomenclatural Codes Belong in Your Toolbox. Donald H. Voss. 4:203-204.

Nomenclatural Pitfalls: Linnean Azalea Names. Donald H. Voss. 2:69.

Notes from the International Rhododendron Registrar 2012. Alan Leslie. 4:228-229.

Nova Scotia's Public and Botanical Gardens. Sheila Stevenson. 3:142-144, 148.

Palmer, Bruce. *The Word: Dormant*. 1:17.

Palmer, Bruce. *The Word: Mycorrhiza*. 4:214.

Palmer, Bruce. *The Word: Raceme*. 2:77.

Palmer, Bruce. *The Word: Stoma*. 3:131.

Parker, Mary. *Using Potted Plants to Create a Garden Landscape*. 4:222-224.

Philips, Nathan C. *Variation in Flame Azalea (Rhododendron calendulaceum) Germination Behavior and Seed Morphology*. 1:9-14.

Photo 101: Tips re Camera Focusing. Dick Jones. 2:72.

Plant Hardiness Zones. Glen Jamieson.

2:99-106, 119.

Plants other than Rhododendrons

Hellebores: *The Delight of Our Yard*.
Mardi Andrews. 4:219

Quince Isn't just for Spring. Betty Montgomery. 2:84.

Pruning. Dennis McKiver. 1:52-53.

PUBLICATIONS

ARS Journal Index, 2013, 4:213.

ARS Register of Plant Names and Checklist, Michael Martin Mills, Winter 2011 Supplement; Spring 2012 Supplement, 2:108-112,118; Summer 2013 Supplement, 3:172-177; Autumn 2011 Supplement, 4:230-237.

Jim Barlup's Newly Registered Cultivar Names: Published in the Spring 2013 Issue. 178-179.

Book Review. 4:216.

R. coriaceum: Subgenus Hymenanthes, Sect. Ponticum, Subsect. Falconera. 2:98.

Rhododendron dalhousieae (aka *R. dalhousiae*). Donald H. Voss. 3:130.

R. decorum : Subgenus Hymenanthes, Sect. Ponticum, Subsect. Fortunea. 2:113.

Rhododendron 'Fastuosum Flore Pleno'. Don Wallace. 1:8.

Rhododendron Growing in a 'Mediterranean' Climate: the British Columbia Experience. Brenda Macdonald. 2:70.

RHODODENDRON HYBRIDS

'Alison Johnstone'. 4:223.

'Amber Waves'. 2:118.

'Breezy'. 1:43.

'Burnie Supreme'. 2:139.

'Calsap'. 4:202.

'Capistrano'. 3:159.

'Carol's Candy'. 3:178.

'Catherine White' 2: 118.

'Champagne Lace'. 3:178.

'Chemainus'. 2:115.

- 'Cinnkeys'. 1:18.
 'Cisroe Morris'. 4:230.
 'Conroy'. 4:223.
 'Copper Canyon'. 3:178.
 'Dalmatian'. 4:230.
 'Daphnoides'. 4:223.
 'Dawn Star'. 4:230
 'Doctor Denis Percell'. 1:22.
 'Dora Amateis'. 1:43.
 'Dr Halvor Braafladt'. 1:6.
 'Elise Anne'. 4:213.
 'Fancy That'. 3:178.
 'Farewell Bend' 3:178.
 'Frosted Lemon' 3:178.
 'Golfer'. 1:42.
 'Grace Louise'. 4:231.
 'Haag's Choice'. 1:42.
 'Helen Vieira'. 1:22.
 'Herbstfeuer*'. 4:195.
 'Herbstfreude'. 4:195.
 'Herbstzauber'. 4:195.
 'Hertstgruss'. 4:195.
 'Hey There'. 1:22.
 'Holden'. 4:202.
 'Horizon Monarch'. 4:223.
 'Howard J'. 3:175.
 'Illam Violet'. 4:223.
 'Ivory Dream' 3:178.
 'Jeremiah William'. 4:231.
 'John Kinssies's Waterfall'. 4:232.
 'John Paul Evans'.
 'Joy Ridge'. 1:3.
 'Judy's Choice' 3:178.
 'Lady Bug' 3:178.
 'Lemon Prelude' 3:178.
 'Lois Blackmore'. 3:175.
 'Markeeta's Flame'. 4:223.
 'Mary Collins'. 2:118.
 'Mary Fordham'. 1:43.
 'Mary Margaret Haugen'. 3:175.
 'Noyo Star'. 4:232.
 'Orange Amber' 3:178.
 'P.M.A. Tigerstedt'. 1:19.
 'Painted Bride'. 4:232
 'Patricia Hansen' 3:178.
 'Patricia Marie'. 1:6.
 'Phylis Korn'. 1:43.
 'Pilkington's Pride'. 2:118.
 'Purple Splendor'. 1:43.
 'Razorbill'. 1:43.
 'Rita May'. 3:175.
 'Robert Sutherland'. 4:232.
 'Rubicon'. 1:46.
 'Ruth's Sister'. 4:233.
 'Sabrina Adler'. 1:6
 'Saffron Meadow'. 1:6.
 'Sandstone' 3:179..
 'Scott's Starbright'. 1:6.
 'Scott's Valentine'. 1:6.
 'September-Flair'. 4:195.
 'Sir Charles Lemon'. 4:223.
 'Southland'. 1:42.
 'Speckled Honey' X 'Capistrano'. 3:159
 'Speckled Honey'. 3:159.
 'Spring Gold'. 1:3.
 'Starbright Champagne'. 4:223.
 'Summer Sunrise' 3:179..
 'Tangerine Charm' 3:179..
 'Taurus'. 1:42.
 'Thea Ann'. 3: 175.
 'Towner Crest'. 4:223.
 'Van Nes Sensation'. 4:223.
 'Violet Magic' 3:179..
 'Virginia Stewart'. 1:6.
 'Weinlese'. 4:195.
 'White Ginger' 3:179.
 'White Gold'. 4:223
 'Wind Song'. 1:43.
 "Annie Fish". 4:230.
R. degronianum var. *yakushmanum* X
R. calophytum X *R. dichroanthum*.
 2:115.
R. degronianum var. *yakushmanum* X
R. coriaceum. 2:115.
R. degronianum var. *yakushmanum*
 X *R. rex* ssp. *Fictolacteum* X *R.*
pachysanthum. 2:115.
R. degronianum var. *yakushmanum*
 X *R. rex* ssp. *rex* X *R.*
pseudochrysanthum X *R.*
arboretum ssp. *zeylanicum*. 2:115.
R. degronianum var. *yakushmanum*
 X *R. rex* ssp. *rex* X *R.*
pseudochrysanthum X *R.*
arboretum ssp. *zeylanicum* X *R.*
bureavii. 2:115.
R. degronianum var. *yakushmanum*
 X *R. rex* X *R. bureavii* X *R.*
macabeanum X *R. wardii*. 2:115.

Rhododendron of the Year Awards, 2013.
Ray Smith. 1:42-48.

RHODODENDRON SPECIES AND SELECTED SPECIES FORMS

R. burmanicum. 1:3.
R. calendulaceum. 1:42.
R. carneum. 1:3.
R. catawbiense. 1:58; 4:198.
R. coriaceum. 2:115.
R. crassum. 1:6.
R. cubitii (now *R. vetchianum*). 1:3.
R. eclecticum. 3:123.
R. forrestii. 3:123.
R. macrophyllum. 3:151.
R. martunianum. 3:126.
R. minus var. *chapmanii*. 2:63.
R. minus var. *minus*. 2:66.
R. morii. 4:223.
R. mucronulatum. 1:42.
R. neriiflorum. 1:19.
R. nutallii. 1:6.
R. orbiculare. 4:223.
R. ponticum. 4:198.
R. quinquefolium. 1:58.
R. schlippenbachii. 1:42.
R. scopulorum. 1:6.
R. sutchuenense. 4: 227.
R. vaseyi. 1:42; 1:43.
R. wardii. 2:115.

R. taliense: Subgenus Hymenanthes,
Sect. Ponticum, Subsect. Taliensia,
Group C. 3:159.

Richardson, Garratt, Band-aids for Boot
Blisters: Medical Experiences while
Plant-Hunting in Asia, 4:189-191

Rock, Shirley. ARS Newsletter Contest
Results. 2:73.

Schepker, Hartwig. Autumn Blooming
Rhododendron Cultivars. 4:194-195.

Smith, Ray. Rhododendron of the Year
Awards, 2013. 1:42-48.

SOCIETY NEWS

2012/13 ARS Rhododendron Photo
Contest Rules. 2:90.

2013 ARS Photo Contest. 1:57.

5th International Vireya Seminar,
February 21 and 22nd, 2014.

4:209.

Acquiring New Chapter Members.
Shirley Rock. 2: 88.

Announcement of Research Grants,
1:27.

ARS 2010 Grant Program - Invitation
of Interest. 1:28.

ARS Annual Convention 2013. 1:28-
39.

ARS Board Awards Endowment Fund
Grants.

ARS Board of Directors Meeting
Summary. 1:26; 3:153.

ARS Chapter Bronze Medal Awards,
1:26; 2:85-86; 3:153; 4:206.

ARS Chapter Newsletter Contest
Rules. 3:152.

ARS Committees and Chairpersons.
4:211.

ARS Endowment Fund Update. 4:208.

ARS Endowment Grant Program -
Guidelines for 2010 Application.
1:28.

ARS Financial Statement, 3:171.

ARS Financial Update. 2:88.

ARS New Members 11/19/2011
through 2/08/12. 2:120; 2/9/12
through 5/23/12. 3:180; 6/1/2013
through 8/11/13. 4:240.

ARS Officers and District Directors.
4:210.

ARS Research Foundation Grants,
1:31; 2:27.

ARS Research Foundation Update.
3:146.

ARS Services. 4:212.

Awards: Garth Wedemire,
District Award of Exceptional
Contribution. 1:25.

Awards: Laura Grant, Certificate of
Appreciation. 1:25.

Chapter Shows, 2:89.

Chapter/District & Special Donations,
1:26; 3:180; 4:240.

Commercial Members, 4:239.

Digital Version of the Journal of the
American Rhododendron Society.
3:154.

Early Chapter Shows, 1:48.

Election of District Directors, 1:54, 56.

- Email address for Plant name registrar. 1:27.
- Errata. 1:60; 3:180; 4:240.
- Fall Western Regional Conference, Nanaimo, BC. 1:29; 2:92; 3:150.
- Financial Condition of the Society. 3:151.
- General Photo Contest Rules. 1:47; 2:89.
- Gold Medal: Donald W. Hyatt. 3:146.
- In Memoriam Ernie Metcalfe. 3:157.
- In Memoriam, 1:60; 2:117; 3:170; 4:240.
- In Memoriam: Bob & Merrie Goodwin. 2:87.
- In Memoriam: Celia Porter Dollarhide. 3:156.
- In Memoriam: Charles (Chuck) Roger Barnes. 2:87.
- In Memoriam: Dave Richard Shepherd. 4:207.
- In Memoriam: Eleanor Duttweiler Stubbs. 4:207.
- In Memoriam: Fred S. Winter. 2:87.
- In Memoriam: Jean Eleanor (Brown) Smith. 3:157.
- In Memoriam: Patricia Brack. 1:25.
- In Memoriam: Robert "Bob" Ranville Hart. 4:207.
- In Memoriam: Vance and Barbara McDonald. 3:156.
- Individual Donations to the ARS, 2009. 2:90; 3:153.
- International Vireya Seminar - Feb.21–22, 2014, 2:89.
- Late Journals. 1:41; 2:91.
- Letter to the Editor. 1: 27; 2:86; 3:153; 4:204.
- May 2 2013 Board and May 4 2013 Annual Meetings. 3:154-155.
- Middle Atlantic Chapter Awards. 1:27.
- New ARS Test and Display Garden Committee Chair. 2:92.
- New Members, 1:60; 2:116; 3:170; 4:176;
- Online Access to ARS Membership Roster. 3:151.
- Online Journal. 1:24.
- Past president recognition: Don Smart. 3:153.
- Pioneer Achievement Award: Jay and Robert Murray. 3:152.
- Program Library. 1:30; 2: 92; ?
- Registration Form: Fall 2012 Regional Conference. 3:149.
- Research Foundation Update. 3:153.
- Rhododendron Calendar, 1:27; 2:89; 3:157; 4: 207.
- Silver Medal: Garth Wedemire. 3:152.
- Silver Medal: James S. Brant. 3:146.
- Silver Medal: Stephen M. Henning. 3:147.
- Special Event. 3:152.
- View Online ARS Journal. 4:209.
- Specialty License Plate Honoring the Rhododendron will Benefit Nonprofit Gardens in Washington State. Glen Jamieson. 2:71.
- Stalking the Wild Lepidote: *Rhododendron minus* Reconsidered. Ron Miller 2:63-68, 78-83.
- Steinman, Margo. Shades of Brilliance: Holden Arboretum's New Rhododendron Garden and Tree Allée. Cait Anastis. 3:129-130.
- Stevenson, Shelia. ARS Eastern Regional Conference in Nova Scotia. 1:14.
- Stevenson, Shelia and Anitra Laycock. Eastern Regional Conference - Nova Scotia. 2:107.
- Stevenson, Shelia. Nova Scotia's Public and Botanical Gardens. 3:142-144, 148.
- Stewart, Maria and Mike. Western Regional Conference, Newport, Oregon. 3:150-151.
- Summary of 'Cellular Mechanism of Thermo-nasty in *Rhododendron*: Are Membrane Water Channel Proteins (aquaporins) Involved?', Rajeev Arora, 4:196-199.
- The ARS Seed Exchange: Growing Rhododendrons from Seed. Norman Beaudry. 22-24.
- The Big Leaf Rhododendrons. Don Hyatt. 4:225.
- The Emu Valley Rhododendron Garden. Maurice Kupsch. 3:138-141.
- The Garden Blues: Thoughts on Color.

Don Hyatt. 3:133-134.

The Honey Trick: A Technique for Overcoming Reluctant Pollination in Rhododendrons. Betty Ann Addison. 1:40-41.

The Name *Rhododendron calendulaceum* Revisited. Donald H. Voss. 2:73.

The Rhododendron Species Foundation. 2:76.

The Search for Gold - A Lifetime of Organic Artistry. Emily Weissman. 3:135-137.

The Word

Dormant. Bruce Palmer. 1:17.

Mycorrhiza. Bruce Palmer. 4:226.

Stoma. Bruce Palmer. 3:131.

Raceme. Bruce Palmer. 2:77.

Using Potted Plants to Create a Garden Landscape. Mary Parker. 4:222-224.

Variation in Flame Azalea (*Rhododendron calendulaceum*)

Germination

Behavior and Seed Morphology.

Nathan C. Phillips. 1:9-14.

VIREYA HYBRIDS

'Cephas'. 1:46.

'Father Damien'. 1:58.

VIREYA SPECIES

[none]

Voss, Donald H. Voss. Nomenclatural Codes Belong in Your Toolbox. 4:203-204.

Voss, Donald H. Nomenclatural Pitfalls: Linnean Azalea Names. 2:69.

Voss, Donald H. *Rhododendron dalhousiae* (aka *R. dalhousiae*). 3:130. 3:132, 137.

Voss, Donald H. The Name *Rhododendron calendulaceum* Revisited. 2:73.

Wallace, Don. *Rhododendron* 'Fastuosum Flore Pleno'. 1:8.

Weissman, Emily. The Search for Gold - A Lifetime of Organic Artistry. 3:135-137.

Western Regional Conference, Newport, Oregon. Maria and Mike Stewart. 3:150-151.

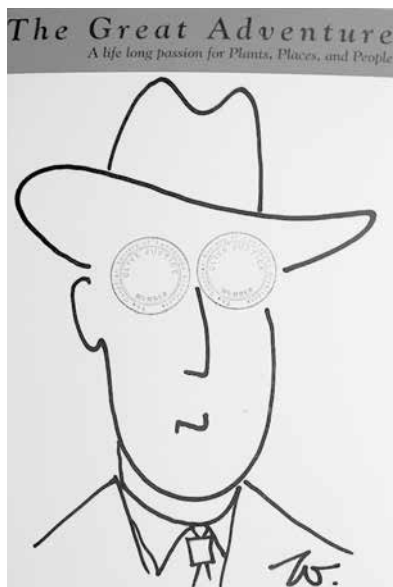
Yarmoshuk, Nicholas. District 12, American Rhododendron Society. 49-51.

Book Review

The Great Adventure, Life with a Passion for Plants, People & Places.

Clive L. Justice, Bigleaf Maple Books, Vancouver, BC. 2013. 446 pages, color photos, softbound.

This book, like the man who wrote it, is large in scope and brimming over with remembrances of times past. In its 446 pages, Clive Justice tells in detail his life's story, now nearly nine decades long, with the same exuberance he has lived it. The book is structured around his life as a landscape architect, and some ARS readers may want to skim over sections of the book that document this and look for the



“rhododendron parts”—and there are many! In fact, readers can learn a great deal about the history of rhododendrons in North American gardens by simply reading this book. Rhododendrons are threaded through the fabric of Clive’s life (he is a recipient of the ARS Gold Medal and played an active role in the ARS Vancouver Chapter), and he took part in several of the historic events that whetted the appetite among gardeners for the genus.

In 1974 he was a member of the first ARS Sikkim tour.

In 1981 he was a member of the first Canadian botanical delegation to the People’s Republic of China, climbing Emei Shan in Sichuan province with its wealth of rhododendrons and visiting numerous gardens and sites from eastern to western China.

In 1991 traveled to Sikkim to help develop tourism with rhododendrons as star players. Here in Sikkim he developed a long friendship with Keshab Pradhan that led to the establishment of the ARS J.D. Hooker Chapter.

And early in his career as a landscape architect, he advocated the use of rhododendrons in garden design.

The book, however, is not only about the fabled genus but also about “non-rhododendron” events the author witnessed throughout his life. Canadian readers may well find interesting his childhood experiences growing up on rugged Saltspring Island in British Columbia where he was born in 1926. And many will find his training in the Canadian army in preparation for D-Day intriguing. His stints in Kuala Lumpur in Malaysia to advise in park development are also interesting.

The main characters in the book are his wife Wanda and their four boys. His devotion to them injects a human dimension, for they are equally a source of joy and adventure along with plants and places.

Many readers will find bits and pieces in this book to treasure, including many historic photographs of his adventures in the rhododendron world and beyond.

For information on obtaining the book, contact Clive Justice by email: cljlah@shaw.ca

Sonja Nelson

An Early History of *Vireya*, The People, Places & Plants of the Nineteenth Century - Part 1

Chris Callard
Colliers Wood, London, UK

(Modified from *Rhododendron Species 2011 Yearbook, Rhododendron Species Foundation and Botanical Garden.*)

The distribution of *Rhododendron* subgenus *Vireya* is centred on the botanical region known as *Malesia*—an area of south-east Asia encompassing the Malay Archipelago, the Philippines, Borneo, Indonesia and New Guinea and surrounding island groups. It is for this reason that vireyas have sometimes in the past been referred to as “Malesian Rhododendrons,” although nowadays this is not considered a strictly accurate term as a small number of the 318 species in subgenus *Vireya* grow outside this region and, similarly, a few species from other subgenera of *Rhododendron* are also to be found within its boundaries. Broadly speaking, the *Vireya* group extends from Taiwan in the north to Queensland, Australia, in the south, and from India in the west to the Solomon Islands in the east.

Much of the early recorded history of the plants of *Rhododendron* subgenus *Vireya* came about as a result of the activities of European nations, particularly Britain and Holland, pursuing their colonial ambitions across the Malay Archipelago and, later, east to New Guinea. As their Empires expanded into these previously unexplored territories, settlements were established and expeditions mounted to survey the natural wealth and geography of the land. Many of these early explorers had scientific backgrounds, although not always in botany, and collected all manner of exotic flora and fauna found in these unfamiliar surroundings, to ship back to their homelands.

The *Vireya* story starts in June 1821 when the Scotsman, William Jack, one of “a party of gentlemen” (Jack 1822a), set out from Bencoolen (now Bengkulu), a settlement on the south-west coast of Sumatra, to reach the summit of Gunong Benko (Bungkuk), the so-called Sugar Loaf Mountain, “not estimated to exceed 3,000 feet in height.” It was here that Jack found what was to be the first *Vireya* species to be described—*Rhododendron malayanum*.

Jack was the son of the Principal of Aberdeen University in Scotland and, in 1813, took up employment with the East India Company in Calcutta, India, as a surgeon. It was five years later, whilst recuperating from a bout of tuberculosis in the company

of Nathaniel Wallich, Superintendent of the Calcutta Botanic Garden, that by chance Jack met Sir Thomas Stanley Bingley Raffles, then Lieutenant Governor of Bencoolen. Raffles engaged Jack in the role of naturalist-come-physician and had him accompany his party to Penang, on the Malay Peninsula, then on down to Singapore and eventually across to Sumatra. Jack was able to spend much of this time botanizing, enabling him to amass a substantial collection of dried specimens.

In 1822, Jack published his account of the expedition to Gunong Benko the previous year, here making only brief reference to his discovery of a *Rhododendron*: “The character of the vegetation was decidedly alpine, the rocks and trunks of the trees being covered with dense moss, and many of the shrubs belonging to genera of higher latitudes such as *Vaccinium*, *Rhododendron*, etc.” Accompanying this tale of his ascent of the mountain, Jack also published detailed botanical descriptions of 132 plants of varied genera, and it is here that his full account of *Rhododendron malayanum* (Jack 1822b) can be found. That Jack was able to correctly determine this modest shrub with small, crimson tubular flowers to be a rhododendron at all is quite remarkable as, at that time, the only known Asiatic rhododendron was the tree-like *R. arboreum* from India with blood-red flowers.

Within months of publishing his work, however, Jack died at the age of only 27—a victim of the pulmonary tuberculosis he had suffered with for several years combined, according to Raffles, with an acute attack of malaria. Two years later, on February 2, 1824, as if to compound the tragedy, most of Jack’s manuscripts and plant specimens were aboard the *S.S. Fame*, which had barely set out on its return voyage to Europe, when it caught fire and sank off the coast of Bencoolen with the loss of all its precious cargo.

In 1818, Carl Ludwig Blume, a 22-year-old medical doctor born in Germany but who spent much of his life in Holland, arrived on the island of Java, which at that time was a Dutch colony. Blume had come to the country wanting to find out about native medicines used on the island and so took up the study of botany. He was soon appointed to the position of Assistant Director at the Botanic Garden at Buitenzorg (now the Bogor Botanic Garden) and four years later, he succeeded Caspar Reinwardt as its Director. It was Reinwardt who had overseen the conversion of a large portion of the grounds of the adjoining presidential palace into a botanic garden, which opened in 1817 for the purpose of cultivating and assessing plants collected from across the Indonesian Archipelago. Blume was a prolific collector and writer, publishing his findings in *Bijdragen Tot De Flora Van Nederlandsch Indie* (Contributions to the Flora of the Netherlands Indies).

It was in Volume 15 of this work that, in 1826, he proposed a new genus *Vireya*, in honour of his friend, the pharmacist Julien-Joseph Virey, at the same time publishing descriptions of five species—*Vireya javanica* (now *R. javanicum*), *V. alba* (*R. album*), *V.*

tubiflora (*R. malayanum*), *V. celebica* (*R. celebicum*) and *V. retusa* (*R. retusum*) (Blume 1826). Shortly after this Blume returned to Holland, when his position at the gardens was dispensed with due to financial constraints, and a few years later became Director of the National Herbarium (Rijksherbarium) at Leiden. The concept of a genus *Vireya* was never widely accepted amongst Blume's peers although, as shall be seen later, it was to be some years before it was definitively rejected.

In 1844, Justus Karl Hasskarl, Assistant Curator at Buitenzorg under Johannes Teijsmann, described *R. citrinum* (Cat. Hort. Bog. 1844. 161). Hasskarl travelled extensively around Java from 1841-3 and found *R. citrinum* on Mt. Gedeh in the far west of the island. The successful collection of even dried botanical specimens was fraught with difficulties for the nineteenth century explorer in southeast Asia. The strenuous physical demands of travelling through hot and humid tropical jungle to reach remote, often mountainous, collecting grounds, not to mention the oft reported truculence of the indigenous populations encountered along the way, who were required to act as guides and porters, must have tested the mettle of even the most adventurous. Once specimens had been collected, there was still the additional hazard of the long sea voyage back to the botanical institutions of Europe where the material was to be examined.

All the more remarkable then, that around 1845, Thomas Lobb, working for the famous dynasty of English nurserymen, Messrs James Veitch & Son of Exeter, should introduce the first living *Vireya* material into cultivation. Thomas Lobb had been employed at the nursery for 13 years when, aged 26, he was selected by James Veitch to go to south-east Asia, an area recommended to Veitch by Sir William Hooker of Kew as likely to yield plants of horticultural interest. Lobb's elder brother, William, had already been working for the Veitch nursery for three years as a plant collector in South America with great success; however Thomas had never strayed far from his home in the West Country of England and spoke no foreign languages. Undeterred, Lobb signed the following contract dated January 11, 1843 (Veitch 1906):

"Thomas Lobb agrees to proceed to the British Settlement of Singapore, in the employ of James Veitch & Son as botanical collector, to make collections of living plants, seeds, and dried specimens of plants, and to collect for the said James Veitch & Son and for no other person. The understanding of this agreement is that the said Thomas Lobb's principal destination is to be China, should that country be open to admit a botanical collector, and in the absence of any definite instructions from James Veitch & Son, Thomas Lobb is to use his own discretion and be guided by existing circumstances as to what parts of China he proceeds to, and if on arrival at Singapore he finds circumstances are not favourable for his proceeding to China, he shall be at liberty to proceed to such of the oriental islands as may appear to him most desirable; but next to China the island of Java appearing to offer the greatest advantages to a botanical collector (if facilities offer for exploring the same with safety), he is directed to proceed thither, but it is left to his own discretion."

Upon arrival, Lobb "did not find China ready to receive a botanical collector" and so, his entry refused, set out for Java, only to discover that the paperwork required by the Dutch authorities on the island had not arrived. Using the discretion granted him by Veitch, Lobb then sailed to Singapore and immediately set about exploring and col-

lecting in the Malay Peninsula, only some time later returning to Java where he was able to carry on his collecting activities most successfully.

Lobb travelled widely, not only during the period of this contract but also for a second extended term, setting out from England on Christmas Day 1848, arriving in Calcutta the following March. After spending some time in north-east India, Lobb moved on to Moulemein in Lower Burma before returning to his earlier hunting grounds of the Malay Peninsula, North Borneo and the Philippines. In all, Lobb was active in the region from 1843 to 1859, at which time he was forced to return to England following an accident that resulted in the loss of a leg, thereby ending his career as a plant collector.

Lobb was later to receive glowing praise from James H. Veitch, writing in *Hortus Veitchii* (Veitch 1906):

“... his discrimination equaled his energy, and he sent home but few plants that proved unworthy of cultivation. It is not saying too much to assert that during the long period Lobb collected in the East, British gardens were enriched with more beautiful plants of Indo-Malayan origin than by any single collector of his own or any other time.” Adding, “In manner Lobb was modest and retiring, of few words, and it was difficult to get him to describe a plant, but if he ventured on calling it ‘very pretty,’ it was quite sufficient to induce extra care.”

Amongst the many hundreds of plants Lobb shipped back to his employers were five vireya species—the first of which to be introduced, according to Veitch, was *R. jasminiflorum*, as seed collected in Malacca in the Malay Peninsula and received at the nursery by 1845. This flowered for the first time in September 1849 and such was its novelty, was promptly sent for figuring in the Botanical Magazine (t.4524, 1850), its editor remarking,

“At the first, and truly splendid, exhibition of flowers at the Chiswick Gardens of the present year (1850), few plants excited greater attention among the visitors most distinguished for taste and judgement, than the one here figured, from the nursery of Messrs Veitch of Exeter. Many excelled it in splendour, but the delicacy of form and the colour of the flowers (white with a deep pink eye), and probably their resemblance to the favourite Jessamine (some compared them to the equally favourite Stephanotis), attracted general notice. So unlike indeed are they to the ordinary form of Rhododendron blossoms that the Gardeners’ Chronicle, in recounting the prizes of the day, seemed to imply that it was probably no Rhododendron at all!”

Next to arrive was *R. javanicum*, sent by Lobb in 1845, this time from Java. Upon revealing its bright orange flowers for the first time, it, too, was sent for figuring in the Botanical Magazine (t.4336, 1847), James Veitch at the time remarking “it is certainly one of the finest things ever introduced to our gardens.” The Gardeners’ Chronicle, with, as shall be seen later, an element of prescience, commented that the plant “promises to be a great acquisition as well on account of its own intrinsic merit as for the purposes of hybridization.”

R. brookeanum (now considered a subspecies of *R. javanicum*) followed, and was collected by Lobb in Sarawak. This flowered for the first time in 1855 and was exhibited in July of that year where it “attracted great attention.” Lobb’s next introduction was *R. malayanum*, the species originally found by William Jack, which he collected on

Mount Ophir in 1854. The last remaining introduction, from Sarawak in 1861, was named in his honour, *R. lobbii*; however this name has since been reduced to synonymy under *R. longiflorum*.

These five Lobb introductions were supplemented by a further two *Vireya* species collected by Charles Curtis, who followed in Lobb's footsteps as Veitch's collector in the East Indies between 1878 and 1884. *R. teysmannii* (now another subspecies of *R. javanicum*) was sent from Sumatra and exhibited in March 1885. *R. multicolor*, also from Sumatra, flowered for the first time at the Veitch nursery on November 2nd 1883. Both the pale creamy-yellow flowered form of this species and the red form, (at that time given the species name *curtisii* in honour of its collector, but since reduced to synonymy), were introduced, although the latter no longer appears to be grown in cultivation today. It was the red form however that was the more widely used in the Veitch's hybridizing work.

From this group of species, the Veitch nursery produced "by hybridizing and cross-breeding in a variety of ways, several hundred new forms, many, from a horticultural standpoint, exceed the original species in brilliant and varied colours, large size of truss and individual blooms, compact habit of growth, and the ease with which they can be cultivated". Indeed, no time was lost in attempting to breed from the new arrivals—the first two species received from Lobb were crossed as early as 1850, the beginning of a whole range of so-called "javanico-jasminiflorum" hybrids. Veitch states,

"The first hybrid raised was named Princess Royal, the product of a cross between *R. jasminiflorum* (white) and *R. javanicum* (yellow), and the result is remarkable. The flowers of Princess Royal show no trace of yellow, but are of a delicate pink or rose colour. Another hybrid produced later from the same cross, named Jasminiflorum Carminatum, resembles Princess Royal in all but colour, which approaches crimson."

The man behind many of these cultivars was George Taylor, the nursery's principal hybridist, for whom *R.* 'Taylori' is named. When Taylor retired, his position was filled by John Heal. According to Veitch,

"Heal's great success was achieved when varieties appeared with double flowers, which now constitute what is known as the *R. Balsamaeflorum* 'hybrids. This section originated by impregnating the stigma of a flower which had one of the filaments slightly petaloid, the others being normal, with the pollen from its own anthers: self-fertilization. From the seed capsule that resulted, about twenty plants were raised, and when these flowered they were found to produce double or semi-double blooms. The section received the name of "balsamaeflorum" from the resemblance the flowers bore to those of the double flowered Balsams." [*Impatiens balsamina*]

Possibly it was the unpredictable outcome of the crosses, made using a relatively restricted gene pool, that stimulated such a large breeding programme. Whatever the reason, it attracted the interest of the Reverend Professor George Henslow, the Royal Horticultural Society's Professor of Botany, who studied the Veitch vireyas and their parentage records, presenting his results in a paper read to members of the Society on 12th May 1891v. Henslow's genetic study was remarkable for the time, pre-dating the rediscovery and eventual acceptance of Mendel's earlier, disregarded work on peas that

later became the basis for the Mendelian Laws of Inheritance.

Despite the large number of hybrids raised by the Veitch nursery, the majority have been lost over the years since the nursery closed its doors in the early 1900s. Of the handful of cultivars still grown today, most, including *R.* 'Pink Delight', *R.* 'Ne Plus Ultra' and *R.* 'Taylora', are considered first-rate plants that compare very favourably with their more recent counterparts—welcome reminders of a pioneering nursery, whose introduction of two of the most outstanding *Vireya* species into cultivation in 1845, did so much to promote this group of plants.

References

- Jack, W. 1822a. *Memorandum of a Journey to the summit of Gunong Benko, or the Sugar Mountain, in the Interior of Bencoolen: 1821*. In *Malayan Miscellanies* Vol. ii Bencoolen: Sumatran Mission Press
- Jack, W. 1822b. *Descriptions of Malayan Plants*. In *Malayan Miscellanies* Vol. ii Bencoolen: Sumatran Mission Press.
- Blume, C.L. 1826. *Bijdragen Tot De Flora Van Nederlandsch Indie*. Batavia: Lands Drukkerij. Vol. 15: 854-856.
- Veitch, J.H. 1906. *Hortus Veitchii—a history of the rise and progress of the nurseries of Messrs Veitch and Sons, together with an account of the botanical collectors and hybridists employed by them and a list of the most remarkable of their introductions*. James Veitch & Sons, London.

Chris Callard is a member of the Scottish Chapter.

Hellebores: The Delight of Our Yard

Mardi Andrews
Cumming, Georgia

Photos
by Charlie Andrews



Hellebores are tough plants that look very delicate. Their blooms are beautiful all winter in the mild climate of our north Georgia landscape [flowering will be in late winter or the spring in more northern areas], and their leaves are deep glossy green when most other ground cover is brown or tattered. These perennials are a wonderful groundcover for an Ericaceae garden. I dug my first



A delight to see on a January day. Purple *H. x hybridus*.



H. x hybridus colors range from white to cream, yellow, pink, and dark purple.



Blossoms last for months, turning green as they age.

Helleborus orientalis as seedlings from under my mother's plants, which had originated at Park Seed in Greenwood, South Carolina. Since that time, I have bought plants of various cultivars, but none are so lovely to me as the pure whites on the two-foot by two-foot (61 x 61 cm) plants that came from those seedlings I first dug twenty-five years ago at my mother's home.

As an oversimplification, hellebores primarily come from the area of Europe and Asia north of the Mediterranean. While they are often called "roses," e.g., Christmas Rose and Lenten Rose, they are not related to the Rose (*Rosaceae*) family.

There are many species and cultivated strains, but I will only speak of the four with which I have had experience. *H. orientalis* or Lenten Rose seems to be the most common and easiest to grow in our climate. Nowadays, botanists say most of what we call *H. orientalis* in our gardens are actually hybrids (*H. x hybridus*; *H. orientalis* crossed with *H. cyclophyllus* and *H. ordoisii* gives yellow flowers,



A perfect understory plant for deciduous azaleas. Purple *H. x hybridus*.



Hellebores will drop seeds and generate new offspring.

with *H. multifidus* subsp. *bocconei* to give green flowers and with *H. torquatus* to produce deep purple colours). Their bloom time for me



H. 'Jacob'.



H. foetidus.



A double-blossom hybrid.

is mid January till March. Mature plants are large, sometimes two feet (61 cm) across and tall. It takes about five years to grow a mature plant. The leaves are dark glossy green with deep grooves. The herbaceous stems of the leaves and of the bloom stalks are quite strong. The colors of the blooms are infinite in variety. Mine are solid white, light green, pink, deep purple, and all colors in between, with freckles of many varieties on many backgrounds. On most plants, the blossoms hang their heads facedown. The blossom petals, which are actually sepals (like *Cornus florida*) and not flower petals, remain on the plant and last for many months, turning a light green as seed pods form in the center of the blossom. There are some beautiful double blossoms. I saved seed from my only double last year and hope the seeds produce double-blossom plants. *H. × hybridus* offers beautiful greenery under the native azaleas in our yard, especially in the winter.

H. niger, or Christmas Rose, blooms in our garden from early December into early spring. I have several of the Gold Collection®... 'Joseph', 'Joel', 'Jacob', and a *H. niger* hybrid called 'Ivory Prince'. All of them have beautiful, perky, creamy white flowers, greeting us each time we go out the front door in the coldest of our winters. 'Ivory Prince' blooms are white with pink tones. The foliage of *H. niger* is slightly lighter in color than that of *H. × hybridus*, and the



H. argutifolius leaves have spines, but they are not stiff or sharp.



Hellebore flower petals are actually colorful sepals. Note the seed pods forming inside the flower.

plants I have are smaller than the other species that I have. They do not present nearly the number of blooms as do the *H. × hybridus*, but Christmas Roses tend to hold their blossoms up more than Lenten Roses. I have not had seed from my Christmas Roses, so perhaps mine are sterile hybrids!

The above two species are stemless, with the leaves and flower stalks coming directly from the ground. The next three species have a central stem holding both leaves and flowers, as well as some basal leaves. A type I have

not had long but is quite hardy is the Corsican hellebore *H. argutifolius* (syn. *H. corsicus*). The plant is taller and a one stalk plant. I have not yet seen it bloom although I have had it for two years. The foliage is quite interesting—grayish green with deep lobes and a bit spiky-looking, with sharply serrated leaf margins. *H. lividus*, which I do not have, is similar in growth but has smooth leaf edges or only a few fine teeth. Morphologically, *H. argutifolius* does not typically show the “purple” coloring that is somewhat common in *H. lividus* and it is also a much larger plant on average. Hybrids and garden intermediates between the two species are referred to as *H. × sternii*, with pink flowers that mature to a red with a greenish inside.

My fifth type is *H. foetidus*. “*Foetidus*” means stinking, but my plants do not smell bad at all. It grows taller than my others, about 2½ feet (80 cm). The blooms come in January and early February and are small, light green, and numerous. The leaves are deeply divided, almost fern-like, and are very light in texture.

In my experience all hellebores like shade, and will grow in dappled sunlight to deep shade. They like humusy loose soil and like to dry out between waterings. The only ones I have lost I may have lost from too much water. They probably like fertilizer but mine bloom beautifully even though I forget to fertilize them at the right time, which is late May. I have had so little trouble from pests

and insects that I consider them almost pest free. The sap is irritating to skin so while cutting off the old leaves or in cutting the blooms for flower arranging, gloves are a necessity.

As the flower stalks are forming, I remove the old tattered, leathery leaves to keep the soon-to-come blossoms from tangling in the old leaves, and to allow sunlight to get to the previous year's little seedlings. New shiny leaves will soon take their place.

I propagate hellebores by pulling the leaf mulch back from the mother plant before the black seeds drop in the spring. This allows the seeds to come into contact with moist soil. For several years I wondered why I had no seedlings until I realized the seeds were falling on the top of dry leaves and never reached the soil proper. The seedlings transfer best when they have true leaves and are about 3 inches (7 cm) tall, which is into their second spring. It is very difficult for me to have a good percentage of success if I dig them up at a smaller size, so I leave them under the mother plant until then and let Mother Nature take care of them. Digging seedlings at the end of winter moves the plants out of the way for the new seeds to be deposited next May or June.

I have ordered lovely varieties from specialty hellebore growers, but the seedlings my plants have produced are wonderfully varied and can compete well to be the prettiest. I have found a few of the *H. niger* Gold Collection® at Lowe's Home Improvement garden centers, Pike Nurseries and Home Depot garden centers. We have also purchased from Piccadilly Farms in Bishop, GA, and mail ordered them from Pine Knott Farms in Clarksville, VA (www.pineknottfarms.com) to purchase some of their specific cultivars. Most hellebores are sold as seedlings and not clones, but the more rare blooms have been developed as named strains from selective breeding for multiple generations. Apparently, hellebores are difficult to propagate from division and tissue culture. My experience with division is that the plants do not like it; divisions often die and the mother plant is set back for a year or more. Whole mature plants can be transplanted successfully if placed in a comfortable spot with good organic soil and not too much water. Remove old leaves before transplanting.

Hellebore enthusiasts agree that there are no ugly hellebores. Their leaves are unusual, interesting, and attractive. They send up their flowers in winter and early spring when little else is blooming. The color palate is wide. But my husband Charlie says I have too many hellebores, perhaps in part because they seed themselves in pathways and all over, and I object if he steps on one!

Mardi Andrews is a member of the Azalea ARS Chapter.

Using Potted Plants to Create a Garden Landscape

Mary Parker
Nanaimo, BC
Canada



Photos by the author

I have been growing rhododendrons in pots for about 18 years, even when I had a proper city lot with dirt and not the rocks and clay I have at my current location. At that time, fellow rhodoholics didn't think using pots extensively was such a great idea, but I had run out of room in my garden in Qualicum Beach, BC, so the extra plants went into pots on the deck and patios. *R.* 'Point Defiance', for an example, grew in a large pot for at least ten years, blooming and looking great until I found a garden home for it. I still have 'Queen Anne's' here in Nanaimo that has been in a pot for 18 years. She is five feet (1.5 m) wide and about 4 1/2 feet (1.4 m) high.

When I moved from Qualicum Beach to Nanaimo, BC, five years ago,



Geranium, hydrangea, *Halesia carolina* 'Silver Bells', *Acer* 'Red Dragon', 'R. Markeeta's Flame', *R. orbiculare*.

the soil on my new property consisted of solid clay and gravel rocks for a lawn! I planted a three-foot (0.9 m) rhodo on top of this material with what I thought was a good drainage base, but it died within three months. Consequently, everything else eit-



Mary Parker's house before landscaping with potted plants.



Mary Parker's house after landscaping with potted plants.

her stayed in their pots or was moved to larger pots. I try to use terracotta colors because the garden is in 80% full sun, and black plastic pots attract too much heat.

My planting medium consists of $\frac{3}{4}$ bark mulch and $\frac{1}{4}$ compost and to this I throw in some bone meal and epsom salts. During the summer, I put saucers under my pots to hold water but some now are too big to lift to allow me to do

this. The saucers allow the pot's media to absorb any excess nutrients and water during the summer heat. I remove them in the fall so that the pots will have good drainage in our climate's winter rains.

I find I have more problems with younger plants that do not have a good root base, and I thus try to stay away from them. One great thing is that if a potted plant isn't happy and doing well, just try moving it. Full sun like I have day after day in the summer is hard on any plant but some rhodos do tolerate it. 'White Gold' is a real trooper!

When I buy a one gallon (3.7 l) plant, I very often move it into a two gallon (5.4 l) pot so that it has more soil around the roots. After it is well established and looks like it would like more space, I move it up a one or even two pot sizes.

I am now at a stage where I am finding it hard to get 5 gallon (20 l) and larger pots. I do sometimes put smaller plastic pots into my lovely larger colored ceramic ones, and use a couple of bricks under the plastic pots to allow for good drainage, as the ceramic ones usually only have one drainage hole in the middle of the bottom. I try to do anything to allow for good drainage. On my rocky ground I do not have to worry as excess water can drain off but if the pots are

flat on concrete, you may have to use those cute little feet they have for pots to sit on to raise them up, or something similar.

As far as having problems with potted plants, it really depends on where you are putting the pot—in the sun, shade or in a windy location. I have put up a windbreak for my 6 foot (1.8 m) ‘Sir Charles Lemon’ because of the place I have to keep it because of its large size. If you have a windy deck location, such as in a condo, it may be best to use low growing plants with smaller leaves.

And, how many are too many? I do have quite a few, no doubt, and my space is running out and if I move I would need many trucks for the move!

Watering

I installed an automatic watering system with seven zones on two four-outlet manifolds, and each has a timer and waters a specific area of the garden. Larger pots have two or three sprinklers in them.

If watering by hand, I use the old standard measure of when enough is enough—when water begins to come out of the bottom, then water the plant again. I also usually go and water plants by hand after I have put epon salts on each plant. It takes three to four hours, but that is when I talk to the plants and just enjoy each one on its own. In 2011, we had a lot of rain in the early summer and I turned my watering system off. Three weeks went by, and then someone asked me about my *Deutzia* ‘Strawberry Field’ which was surrounded by pots of the larger rhodos that were in full sun. Well, the *Deutzia*’s leaves were rather



R. ‘Towner Crest’, *Hydrangea* ‘Annabelle’, *Osmanthus burkewoodii*, *R.* ‘Alison Johnstone’, *R.* ‘Starbright Champagne’, *R.* ‘Sir Charles Lemon’, *R.* ‘Conroy’, *R. morii*, *R.* ‘Van Nes Sensation’.



R. ‘Horizon Monarch’ in bud.



R. 'Illam Violet', *R. occidentale*, *R.* 'Irene Koster', *R.* 'Daphnoides'.



Acer palmatum dissectum 'Seiryu', hydrangea, peonies, *Cornus kousa* 'Satomi', *Halesia carolina* 'Silver Bells', Swiss chard in pot! *Acer* 'Red Dragon'.

shriveled up but the rhodos were all fine! A good pruning for the 'Strawberry Field' and this year it is healthier than ever. That is when I realized they do not need as much water as I thought.

Fertilizing

I find I have to fertilise the plants two times a year, once in early spring and then another light dose at the end of May. They also get two to three shots of epsom salts throughout the year. I mix my own fertilizer and here is the recipe:

Two scoops (a scoop is a 500 ml (one pint) cottage cheese container) each of alfalfa meal, canola meal, bone meal and epsom salts; one scoop each of granular moss killer, Green Leaf rhodo food (10/8/6) and dolopril lime [dolomitic lime crushed to a very fine



R. 'White Gold'.



R. 'Lem's Monarch'.

powder]. Mix this all together before use. This can be adjusted according to your needs.

I now have plants in about 300 pots of all sizes on my 448 m² (4822 ft²) property, containing eight foot (2.4 m) *Thuja occidentalis* 'Smaragd' (emerald cedars), several different magnolias, lots of different maples, *Katsura*, locust, poplar, beach, silk tree, *Cercis canadensis* (red bud), *Ginkgo biloba*, dogwoods, *Enkianthus*, *Hamamelis*, *Corylopsis*, *Osmanthus*, *Eucryphia*, *Prunus*, hydrangeas and many, many azaleas and rhodos from 8 inch (20 cm) *R. impeditum* to a six foot (1.8 m) 'Sir Charles Lemon'.

The wonderful part of plantings with pots is that they are all moveable, although some easier than others, depending on size. If the plant growth is not best in one part of the garden, then just move it to somewhere else. You have no weeding and if you have any bugs in your pots because they are near conifers, put in some birdseed and the birds will do the job of removing them.

To get rid of weevils, I water the plants using 2/3 cup (160 cc) of liquid Lysol in a standard green watering can about every two weeks, starting in late January and going until the middle of March.

The main problems that I have had relate to putting a plant in full sun when it didn't want to be there. You just learn from experience by monitoring each potted plant and if you have any questions, just email me (maryjparker99@shaw.ca) and I will do my best to help you!

I have had a few potted rhodos that died, sad to say, and it is maybe because I had them in the wrong place or that I watered them too much! When we had a very cold winter and it went down to -12° C (10° F), I lost my 6 foot (1.8 m) *R. cinnabarinum* ssp. *xanthocodon*. I have a few rhodos that I now tuck under my larger ones during the winter, like *R. edgeworthii*. I am playing with fire having a *Magnolia* 'Timeless Beauty' that is 10 feet (3 m) tall and an *Albizia julibrissin* (silk tree) that just spent its first winter with me (luckily it was a very mild winter!).

The whole garden is hard to photograph and those that have seen the pictures and then come and visit the garden find it hard to believe how colorful and private it really is. I mix the plant types and cluster them to create a real garden feel. My pot garden has lovely color in all seasons, and especially in the fall with the maples, witchhazel and hydrangeas.

You could say I have gone to pot, and now I even plant potatoes in heavy plastic grocery bags!

There is something about dirt that I just love!

Mary Parker is a member of the Mount Arrowsmith ARS Chapter, and one of its past presidents. For the past three years, she has been the ARS District 1 Director.

The Big Leaf Rhododendrons

Don Hyatt
McLean, Virginia



(Modified from the Potomac Valley Chapter September 2011 newsletter.)

Every time I visit rhododendron gardens in the more benign climates of the Pacific Northwest or Scotland, I return home wishing I could grow some of those large leaf species. I really have no room for rhododendron trees in my garden and my climate is too severe, but those plants are spectacular. One can always dream.

The big leaf rhododendrons generally fall into two groups and those are placed in the section *Pontica*, the same taxonomic group that contains most of the elepidote rhododendrons we know and grow in our gardens. Familiar members of *Pontica* include some of our hardier rhododendrons like *R. fortunei* that was a parent of the large leaf Dexters, and dwarfs like *R. degroniamum* ssp. *yakusimanum* (*R. yakushimanum*) as well as our Eastern native species like *R. maximum* and *R. catawbiense*. The section also contains tender species like the blood red *R. arboreum* from the Himalayas and of course the section's namesake, *R. ponticum* from the Caucasus and Eastern Europe. Interestingly, *R. ponticum* [or at least a hybrid of it, see *JARS* 66 2:109-110] is known as the "dreaded weed" since it has become a serious invasive pest in many locations of the British Isles and New Zealand.

The *Grandia* subsection (*Grande* Series) has eleven species and the largest leaf forms in the genus. In the wild, some plants can grow to 100 ft (30.5 m) tall. Native to the lower elevations of the Himalayas in western China, Tibet, Nepal, northeast India and parts of Burma (Myanmar), all of the species in this subsection require sheltered sites and relatively mild climates, Zones 8 to 9 provided the summers do not get too hot. The regions where they grow get abundant moisture and the humidity is high.

The "biggest of the big" is *R. sinogrande* with individual leaves that can reach 3 ft (0.9 m) long! The plants do have to reach some size before they bloom, but when they do it is pure majesty with those huge leaves and enormous trusses of

cream to light yellow flowers. The plant doesn't need to bloom to become the focal point in any rhododendron garden, however. Those huge glossy leaves with deep veins are magnificent.

The foliage on *R. grande* only gets 18 in (46 cm) long and its flowers are cream, light yellow, pink, or rose. *R. kesangiae*, a relatively recent introduction, is very similar. They all look alike to me...big and beautiful!

The hardiest of the group is *R. macabeanum*, but its leaves are not as large, usually only a foot (30 cm) in length. The foliage will develop indumentum as the plants mature, and the flowers can be cream to yellow. Many hybridizers have longed to get some of those qualities into rhododendrons that will grow easily in our region, but most of the species in this group seem to be reluctant parents. Crosses often produce seed, but the viability is typically poor and germination quite low. However, all we need are one or two good plants!

The *Falconera* subsection (*Falconeri* Series) has ten species, and their leaves are not quite as large but are still very attractive. *R. falconeri* is a very tender species from the Himalayan foothills, hardy in Zone 9. Its large leaves can be up to a foot (30 cm) long, indumented, and the flowers are usually pale pink to cream.

One of the species in the group, *R. rex* and its subspecies variants like *R. rex* ssp. *fictolacteum*, are much hardier. Native to western China, these forms are reportedly hardy to Zone 7. My garden is supposed to be Zone 7, but there is a slight difference. In the blistering heat this summer, I recorded the highest temperature ever on that Friday in July when so many records in the East were shattered. In the shade at the back of my house, my thermometer hit 110.3° F (43.5° C)! It was probably cooler elsewhere in the garden since that area gets reflected heat from the house, but it was hot!

R. rex has great foliage with heavy indumentum, and the blossoms are white to pale pink with a prominent blotch. It has proven valuable as a parent, producing some stunning hybrids like 'Hardy Giant' when crossed with *R. fortunei*, or the hybrid produced by Jens Birck of Denmark that he calls 'Great Dane', a cross of *R. rex* with *R. degronianum* ssp. *yakushimanum*.

There are a few rhododendrons with large leaves that we can grow. Many of us have admired 'Hardy Giant' in the Beaudry's [Norm and Jean Beaudry] garden, but there are others with fairly large leaves. The species *R. calophytum* is a member of the subsection *Fortunea*. Its leaves can also be up to a foot (30 cm) in length and it is hardy to Zone 6. Since flowers only last a week or two, I prefer rhododendrons with distinctive foliage that I can admire all year long. I want a hardy *R. sinogrande*!

Don Hyatt is a member of the Potomac Valley Chapter.

The Word: Mycorrhiza

Bruce Palmer
Cutten, California



It's autumn, mushroom season in our part of the world. The fruiting bodies of the subterranean fungi, those organisms that we now believe are more closely related to animals than to plants, are bursting forth from the ground. The Porcini (*Boletus edulus*) on our property have given us their yearly bounty, dependably showing up about two weeks after the first good rain in the fall.

An appropriate word for this season might be Mycorrhiza (Greek, *mykes*, fungus, and *rhyze*, root). The term refers to the association between plant roots and certain fungi living on and/or in those roots but is also commonly used to refer to these fungi themselves. The word came to mind because one of our ARS Eureka Chapter members, Joel Ziegler, forwarded a couple of citations to me, reminding me that members of the family *Ericaceae*, to which the genus *Rhododendron* belongs, do not have root hairs, but depend entirely on associated fungi called mycorrhizal fungi to furnish them with adequate water and nutrients.



Fungal hyphae associated with root of *R.* 'Horizon Monarch', 200x. Photo by author.

To explain what the mycorrhizal association is all about, we should remember what many of us may have learned in our basic biology course. We learned that plant roots have myriad very small rootlets called root hairs (tubular extensions of individual root epidermal cells) that absorb most of the water and minerals required by the entire plant. We were taught that concept, but it is now known that this isn't entirely accurate. Most plants do have root hairs, but nearly all plants have fungi living on and/or in the outer cells of their roots. Most of the material needed by the plant probably comes in through these fungi rather than by way of root hairs. Those fungi, which we call mycorrhizal fungi, are symbiotic (Greek, *sym*, together with and *bios*, life), meaning, in this case, that the fungus and the plant live together and each gains something from the association. There are many species of mycorrhizal fungi in several different categories. In all cases it appears that the plant gets more water and nutrients through the action of mycorrhizae than it can absorb on its own, with or without root hairs, and the mycorrhizal fungus gets protection and a constant supply of food, mostly sugars, from its host plant. Most trees are too large to get enough water and nutrients without mycorrhizae (Bone 2011, pp. 69-78). Members of the family *Ericaceae*, as well as possibly the separate southern hemisphere equivalent family *Epacridaceae*, have networks of very small roots sometimes called hair roots (not to be confused with root hairs, which they do not possess) whose surface cells are filled with mycorrhizal fungi from a category called Ericoid Mycorrhizae (Read 1996, p. 365). This association appears to be true for all genera in *Ericaceae* that have been studied (Largent et al. 1980, p. 2274).

The "invasion" of plant roots by fungi appears to have occurred very early in the history of land plants. Some of the oldest land plant fossils, specimens more than 400 million years old, show the presence of mycorrhizae. The soils on land at that time would have been very impoverished, and both plants and fungi would have benefitted from a symbiotic relationship. Most of the ericaceous plants we hold in high esteem such as blueberries, cranberries, heathers and rhododendrons thrive in nature on thin, nutrient-poor soils similar to what the first land plants would have lived in. It's logical to expect, then, that our rhododendrons, many of which live in nature on thin, poor soil, would have mycorrhizal roots. There are natural examples everywhere in nature. My wife Nelda and I recently made an extended visit to our old haunts on Maui. I noticed that, above 6,000 feet (1829 m) on the 10,023 foot (3055 m) tall Haleakala, two endemic species stand out: Ohelo (*Vaccinium dentatum*), a blueberry relative in the family *Ericaceae*, and Pu'kiawe (*Styphelia tameiameia*) in the ericoid-similar family *Epacridaceae*. That finding shouldn't be surprising given that the soils there are very young, poor and thin. Plants without mycorrhizae would not be likely to dominate in such an ecosystem.

Now comes the controversial part of this discussion. Experiments demonstrate that in the mycorrhizal relationship, fungi take up nitrogen and phosphorus for the plants and that because fertilizers are being used extensively in northern Europe, heathers are being replaced by grasslands with the result that the ecosystem they once dominated is losing its plant diversity. It appears that nitrogen is seeping into the ecosystem and is now upsetting the historical mycorrhizal balance (Read 1996, p. 372). In northern Sweden, recent studies in forests on islands undisturbed by agriculture show that mycorrhizal fungi play a major role in holding carbon underground (Treseder and Holden 2013, pp. 1528-1529, and Clemmensen et al. 2013, pp. 1615-1618), possibly having major implications as the carbon dioxide load in earth's atmosphere increases. Agriculture and horticulture practitioners are finding that the smallest possible disturbance of the soil when planting gives the best chance for plant success. Excess use of fertilizers can cause as many problems as insufficient nutrients. The common thread appears to be that long-standing agricultural practices might be upsetting the relationship between mycorrhizal fungi and their host plants. The old quote "It's not nice to fool Mother Nature" may fit this situation.

Judging from the increasing number of on-line sites offering mycorrhizal fungi in various forms, it's clear that plant propagators are aware of the importance of the relationship. It may not be long before we are all advised to add mycorrhizae to our planting mix when we place our latest rhododendron acquisitions in our gardens. Meanwhile, it's instructive to realize that fungi, now shown to be more closely related to animals than to plants, are indispensable to the success of most plants. It's one more indication of the essential unity of all living organisms.

References

- Bone, Eugenia. 2011. *Mycophyllia*. New York, Rodale: 348 pp.
- Clemmensen, K.E., A. Bahr, O. Ovaskainen, A. Dahlberg, A. Ekblad, H. Wallander², J. Stenlid, R.D. Finlay, D.A. Wardle, and B.D. Lindahl. 2013. Roots and Associated Fungi Drive Long-Term Carbon Sequestration in Boreal Forest. *Science* **339**:1615-1618.
- Largent, David L., Neil Sugihara and Carl Wishner. 1980. Occurrence of mycorrhizae on ericaceous and pyrolaceous plants in northern California. *Can. J. Bot.* **58**(21): 2274-2279.
- Read, D. J. 1996. The Structure and Function of the Ericoid Mycorrhizal Root. *Ann. Bot.* **77**: 365-374.
- Treseder, Kathleen K. & Sandra R. Holden. 2013. Fungal Carbon Sequestration. *Science* **339**: 1528-1529.

***R. sutchuenense*: Subgenus *Hymenanthes*, Sect. *Ponticum*,
Subsect. *Fortunea*. Group A (leaves lanceolate/oblanceolate)**

R. sutchuenense (epithet: from Sichuan) was discovered by A. Henry in 1888 in western Hupeh, China, and was later collected by Wilson in western Hupeh and Sichuan. It was introduced into cultivation in 1901 by Wilson. It grows in mixed woods at elevations of 1373-2440 m (4500-8000 ft) and the main features of the species are the large, broad leaves, its moderate to densely woolly or hairy midrib on the leaves' lower side, and by a wide campanulate corolla without a blotch at its base. In cultivation it is a broadly upright shrub 2-6 m (6.5-20 ft) high. The plant is hardy and has white to rose-pink flowers with reddish spots produced freely in trusses of 8-20.

It is a favourite in my [the Editor's] garden on Vancouver Island, BC, Canada, but because it flowers in late February to March, its flowers are sometimes damaged by a late frost, when its leaves will curl up and droop. It has not been used much in hybridizing, but the clone 'Seventh Heaven' was awarded an AM in 1978 and an FCC in 1987.

References

- H.H. Davidian. (1989) *The Rhododendron Species* Vol II: Elepidotes, Part 1 – Arboreum-Lacteam.
- McQuire, J.F.J., and M.L.A. Robinson. 2009. *Pocket Guide to Rhododendron Species*.

Notes from the International Rhododendron Registrar 2012

Alan Leslie
Cambridge, Cambridgeshire,
United Kingdom

(Modified from Rhododendrons, Camellias and Magnolias 2013, RHS, pp. 128-131)

Each year I end these notes with my thanks to the various national and regional registrars whose work in bringing together applications from their areas is such a boon to the operation of the International Rhododendron Register. However, on this occasion I feel I must start with this subject, since this season has seen the end of an era. Failing eyesight has meant that Jay Murray has had to retire from her role in fielding all applications from North America on behalf of the American Rhododendron Society. Mrs. Murray first took over this task from another long-serving Registrar (Ed Parker) in 1985 and has served with distinction ever since, fielding no less than 3106 applications in the intervening years. I have become almost complacent in assuming that the data I receive from Jay Murray will be accurate and consistent, but these assumptions are almost always correct! The role is no mere sinecure and entails much correspondence with registrants, weeding out obviously unacceptable names and sorting out queries about descriptions and sending the polished versions on to me in a standardised format. This makes my part in the operation much quicker and easier, and in the event I do have any queries, these have always been responded too with equal thoroughness and alacrity. I am keenly aware too that from time to time she has taken the “show on the road” around rhododendron and azalea meetings to promote the registration process. During her tenure this process has moved from an exchange of paper between the two of us (we both started with boxes of index cards) to an almost entirely electronic mode of communication; only the registration certificates now have to go by traditional mail. Her contribution to providing and checking data before the publication of the 2004 Register and Checklist was also second to none, whilst her steadfast dedication to the integrity of registration data has been much appreciated.

I should also pay tribute here to her husband, Robert Murray, who I know has been her keenest supporter, for in effect this has been a tandem operation, with Bob’s support skills on the information technology-side especially having been of special value. He has also been responsible for processing the large number of images received from registrants so that they are retained on file in a standardised format.

With customary efficiency, Jay Murray has been responsible for finding a successor to take over the reins. This will be Michael Martin Mills, who lives in Philadelphia, and I look forward to working with him. He is a retired newspaper editor, with many

years of involvement in the North American rhododendron scene. His own two-acre (0.8 ha) garden contains well over 200 cultivars. The RHS recognised Jay Murray's exemplary service in the award of the Loder Rhododendron Cup in 2005 and to mark her retirement, the International Society for Horticultural Science (who run the entire system of International Cultivar Registration Authorities) has awarded her with an ISHS Medal. In 1999, the ARS presented the Murrays jointly with their Gold Medal. I am sure that I do not have to remind members of the Rhododendron Group that just as was demonstrated so effectively in the recent Olympic Games in London, volunteers play an essential part in all our activities and need to be treasured!

Meanwhile on the numbers front, we received 171 new registrations in 2011, but the current year's figure is still a rather modest 64 (as of August 2012). The latter are made up of 39 *elepidotes*, four non-*vireya* *lepidotes*, four *azaleas* and four *vireyas*. Up until the time of writing, there have been no special factors to bulk up numbers this year. However, recent contact with Maarten van der Giessen in Alabama, USA, has provided the very welcome news that he is considering the formal registration of all the extant, named, deciduous and evergreen *azaleas* bred since 1969 by the late Eugene Aromi, formerly a Professor of Education at the University of Southern Alabama. Mr. van der Giessen worked with Aromi on this project and not only has many of the plants but has inherited the relevant breeding records. He is still evaluating some of the last seedlings and the van der Giessen Nursery is intending to put some into commercial production. Collections of them are also being established in various arboreta, so it is more than valuable to feel that they can and will be properly recorded. Over 130 plants may be involved.

For the initial contact regarding the Aromi *azaleas*, I am indebted to Herman van Ree, whose Hirsutum website (www.hirsutum.info) has already amassed over 7000 images of rhododendron cultivars. When new images are added to the website, Mr. van Ree checks the names against the published Register and Checklist and a note is made if the name is not registered. Through Mr. van Ree's assistance, I now have access to a collated list of some 150 unregistered names and will be gradually working through these, in the first place to get an entry on the Checklist for each one, but ultimately with the aim of getting a formal registration in every case. Getting an initial Checklist entry as soon as possible is important so that I can avoid accepting a new registration with a name that is already in use. There is clearly enough work here to keep us all busy for some time!

This might be the moment to emphasise the significance of the two elements that are the Register and the Checklist, as these have sometimes been misunderstood. Although the two are run together in the published work (and in the database), only those names which have a clear indication to that effect are registered and thus make up the International Register. This is indicated in an entry by the abbreviation REG, followed by the name of the registrant and a year date. This will mean that the name has been checked for earlier use by the Registrar against all names then known on the database and that it was in accord with all the rules in the then current Cultivated Plant Code. Only those that

have been through this formal procedure are registered. Other names found in use may be added as part of the Checklist and include anything named prior to the first list published by the RHS in 1958; the latter are indicated as INC: ICRA, 1958 (INC here meaning incorporated, ICRA being the International Cultivar Registration Authority). Although most Checklist entries will be an acceptable name for the cultivar concerned, others will not necessarily be unique or may in some other respect not be in accord with the Code, and their incorporation should not be seen as automatically giving them any approved status. However, where we know that they have been used, it is clearly desirable to record this so that the information is available and is there to help avoid any further reuse of names.

Many registrants now provide images of their plants and wherever possible the Registrar will have these printed out so that one may be cited as the formal nomenclatural standard for the name. This means that if there is any future doubt about the plant to which that particular name should be applied, then there is a definitive example to check against. It is a version of what the botanical world knows as nomenclatural types, although the latter must usually be pressed herbarium specimens. One hopes that one of the benefits of registration is that the information listed really will be definitive, coming as it does more often than not from the raiser or someone closely involved in the origination of that selection. What is shown in the image will usually be the fully opened truss, but occasionally it may be the foliage where this is an important feature of the new cultivar. In this case, Frank Fujioka's new ('Pretty Baby' × *R. pachysanthum*) × 'Whid Bee') cross is named to connect the dark red flowers and the superb dark colour of leaf lower surface. Another approach, one which appeals at least to the botanical side of the Registrar, is exemplified by Jean Saint Jalm's composite image of his new 'Haloceanum' × 'Coronation Day' selection called 'Noce Bretonne'. Such an image is very valuable in enabling me to check that characters of flowers and foliage have been correctly recorded on the form. A second image demonstrates the appearance of the whole truss, and together with a third, showing the overall habit of the plant (these images not shown here), means that a really meaningful record of this plant has been captured for future reference.

New registrations in the current year have come from across the rhododendron growing world: from the USA, Japan, New Zealand, Australia, France, Germany, Belgium, Norway and the United Kingdom, although it is slightly disappointingly there have been no further new applications from China. As always there have been some interesting choices of epithets. Some which came from Alexis and Liliane Le Duigou might be a puzzle at first until one realises they are in the Breton language: 'Breizh-Izel' is the Breton for Basse Bretagne (French) or Lower Brittany (English), which is that part of Brittany in north-west France which lies west of Plörmel and where the Breton language was traditionally spoken and the culture associated with the language is most prolific. Another, called 'Penn-ar-Bed', is the Breton for one of the four departments of Brittany, which may be better known to some as Finistère (French) or Finisterre (English). It must be noted that using one of these translations in place of the registered epithet is not permitted by

the Cultivated Plant Code and can only lead to confusion as it would all too readily be interpreted as representing another plant.

Relatives feature again in the choice of names, from daughters ('Rebecca Taffet') to grandchildren ('My Li'l Tonto') and wives ('Anne Marie de Beau Vallon'), with other references to pet dogs ('Maddie Mae') and a mythical Swedish princess ('Blanzeflor'). On a sadder note, several names commemorate individuals who died too young ('Joey Rabbit') or in tragic accidents ('Eric Szabo'). Gunnar Gilberg, in Norway, has chosen to name his new *R. auriculatum* seedling 'Berkeley 89', to commemorate not only the locality (in California, USA) from where he collected the original seed, but the fact it was the very day they experienced quite a serious earthquake. He was very impressed that the next day, despite the general confusion, the rhododendron talk he was due to give went ahead as scheduled! I also enjoyed Frances Burns's choice of 'Noiret' for her new wine-coloured selection from 'Frances' × 'Purple Splendour'. Noiret happens to be the name of a hybrid red grape variety raised in the USA by researchers from Cornell University (and only released in 2006). The fact her uncle taught at the University for many years made for another happy coincidence. The old Waterer *R. ponticum* hybrid 'Purple Splendour' must be one of the most used parents in breeding of new cultivars; the Register and Checklist has at least 300 cases where it is directly mentioned in parentages (and this does not count those cases where it is a parent of another cited cultivar).

Work will continue during 2013 to augment the coverage in the Register and Checklist of plants raised in North America and I would be very pleased to hear of any errors or omissions in respect of plants from this area. However, I hope I need hardly say that this does not mean that new information from any part of the rhododendron growing world will not be welcomed by the Registrar and that I am happy to try and answer any queries on the basis of the information now part of the database.

Alan Leslie is the International Rhododendron Registrar for the Royal Horticultural Society, who were appointed the International Cultivar Registration Authority for this genus in 1958, and has held this position since the early 1980s. He was the compiler of the International Rhododendron Register and Checklist published in 2004.

Newly Registered Rhododendron Cultivar Names

Michael Martin Mills
North American Registrar of Plant Names
Philadelphia, Pennsylvania

The following rhododendron and azalea names were approved and added to the International Rhododendron Register before August 13, 2013, by the Royal Horticultural Society, which serves as the International Cultivar Registration Authority for the genus *Rhododendron*. (Information on the registration process follows the descriptions of cultivars.)

Key

(a) – deciduous or evergreen azalea

(r) – elepidote or lepidote rhododendron

(v) – vireya rhododendron

(z) – azaleodendron

X – primary cross

(s) – seed parent of cross, if known

x – cross of an unnamed parent

* – not registered

H – hybridized by

G – grown to first flower by

R – raised by

S – selected by

N – named by

I – introduced commercially by

REG – registered by

Royal Horticultural Society color numbers in parentheses, unless another system is noted

(r) ‘Annie Fish’

Elepidote rhododendron: unknown parentage. H (c. 1970), G (1970s): John C. Cowles, Stowe, MA; N (2013): Alyce Morrissey, Belmont, MA; REG (2013): Heritage Museums & Gardens, Sandwich, MA. Flrs 11/ball truss, open funnel, 2.25 inches (57mm) long x 3.5 inches (89mm) wide with 7 wavy lobes.

Bud: deep purplish pink (73A). Inside of corolla: pale purplish pink (65D), with light yellow green (145B) pistil. Outside: light purplish pink (65B). Truss 5 inches (127mm) high x 6 inches (152mm) wide. Lvs 5 x 2.25 inches (127 x 57mm), oblong, oblique base, broadly acute apex, downcurved margin, moderate olive green (137B) above, matte. Shrub 12 x 12 feet (3.7 x 3.7m) in 40 years; intermediate habit, lvs held 2 years. Plant hardy to 0°F (-18°C), bud hardy to 5°F (-15°C). Flowering midseason (May on Cape Cod). Etymology of name: Named for the mother-in-law of Cyndy Fish, a supporter of Heritage Museums & Gardens.



Annie Fish'. Photo by John Delano.

(a) 'Birdie Mae'

Evergreen azalea: ('Elsie Lee' x 'Dorsett') (s) X 'Helen Curtis'. H (1996), G (2001), N (2013), REG (2013): William L. Clagett, Derwood, MD. Flrs 3/terminal, broad funnel, hose-in-hose, 1 inch (25mm) long x 1.25 inches (32mm) wide with 10 (5+5) wavy lobes. Bud: strong red (39A) with off-white along mid-rib. Inside of flower: deep yellowish pink (39B) fading to off-white in center of each lobe, with heavy strong purplish red (63A-63B) spotting in top three lobes. Outside: deep yellowish pink (39B) with off-white on mid-rib. Calyx: 0.2 inch (3mm), green with white pubescent hairs. Lvs 0.6 x 0.25 inch (16 x 6mm), elliptic, cuneate base, broadly acute apex, flat margins, dark yellowish green (139A) above, semiglossy, white hairs below. Shrub 5 feet (1.5m) high x 3 feet (0.9m) wide in 17 years; intermediate habit, lvs held 1 year, reliable, floriferous bloomer. Plant and bud hardy to 2°F (-17°C). Flowering midseason (May in DC area). Etymology of name: Nickname of the registrant's older sister, taken from the 20th century American comic strip "Snuffy Smith."



Birdie Mae'. Photo by William Clagett.

(r) 'Ciscoe Morris'

Elepidote rhododendron: 'The Hon. Jean Marie de Montague' (s) X unknown. H (1969) Doris Griswold, Kirkland, WA; G (1975), N (2013), I (2013), REG (2013): Griswold Nursery, Kirkland, WA. Flrs 4/lax truss, broad funnel, 1.5 inches (38mm) long x 2 inches (51mm) wide with 5-7 wavy lobes. Bud: vivid red (45A). Inside of corolla: light purplish pink (55C). Outside of corolla: deep pink (52B). Truss 3.5 inches (90mm) wide. Lvs 6 x 1.5 inches (150 x 38mm), oblong, rounded base, acute apex, upcurved margins, moderate olive green (137A) above, glossy. Shrub 3.5 feet (1.1m) high x 4 feet (1.2m) wide in 40 years; intermediate habit, lvs held 2 years, new growth bronze. Plant & bud hardy to 0°F (-18°C). Flowering late midseason (late May in Seattle). Etymology of name: Named for a garden author and television-radio personality in Seattle.

(r) 'Dalmatian'

Elepidote rhododendron: 'Madame Jules Porgès' (s) X 'White Peter'. H (1994), G (1998), N (1998), REG (2013): John Doppel, Lenhartsville, PA. Flrs 15/ball truss, broad funnel, 2 inches (50mm) long x 3 inches (75mm) wide with 5 wavy lobes. Bud: very pale purple (69C). Inside of corolla: white with slight bluish cast,



'Dalmatian'. Photo by John Doppel.

TAKE ADVANTAGE TO VISIT ITALY AT THE LOWEST POSSIBLE PRICE WITH YOUR ARS FRIENDS

My name is Piero Sambucci. I am an ARS member. I owned a camellia ad azalea nursey. I have a bed & breakfast in Velletri, a small city 25 miles from the centre of Rome and located on the famed Alban Hills. Two beautiful crater lakes are ten miles from us. Twenty miles to the south lies the Mediterranean sea. Tivoli is only an hour's drive away with the Villa d'Este famous for its gardens and fountain. Pompeii is less than three hours away. Then Rome, Vatican city, Orvieto, Assisi, gardens and other touristic sites. I have provided tours in these places for fifteen years and have had lots of ARS members come who enjoyed my service and some have returned for repeat visits. I organize two weeks tours just for you. Just think you have a good friend in Italy that can show you all that taking good care of you all the time you will be here making your vacation relaxed and comfortable: breakfast, lunch to take away, dinner at home, transportation, and lots of information.

If you want to get the real taste of Italy form a group of four or five people and come to the country of art, beauty, good food, magic atmosphere and friendship. I also give you the opportunity to choose your own itinerary.

The fall and winter tours are even more convenient.

For Info

Email psambucci@hotmail.com

Web bbsunriseitaly.com

with dark purplish red (N79C) blotch and spots occupying most of upper lobe. Outside of corolla: very pale purple (69C) shading to white at margins. Truss 4 inches (100mm) high x 6 inches (150mm) wide. Lvs 5 x 2 inches (125 x 50mm), elliptic, rounded base, broadly acute apex, flat margins, olive green above, semiglossy. Shrub 4 feet (1.2m) high x 5 feet (1.5m) wide in 19 years; intermediate habit, lvs held 1 year. Plant & bud hardy to -10°F (-23°C). Flowering midseason (early May in eastern Pennsylvania).

(r) 'Dawn Star'

Elepidote rhododendron: 'Capistrano' (s) X 'Skipper'. H (2005), G (2009), REG (2013): John Doppel, Lenhartsville, PA; N (2010): Dennis MacMullan, Hamburg, PA. Flrs 12/ball truss, broad funnel, 2 inches (50mm) long x 2.5 inches (65mm) wide with 5 wavy lobes. Bud: moderate reddish orange (171A) at base, shading to moderate yellowish pink (173D) at tip. Inside of corolla: strong yellowish pink (37A) in throat blending to pale yellowish pink (29D) at margins. Outside of corolla: strong yellowish pink (37A) at base blending to pale yellowish pink (29D) at margins. Truss 3.5 inches (90mm) high x 4.5 inches (115mm) wide. Lvs 4 x 1.5 inches



'Dawn Star'. Photo by John Doppel.

Van Veen Nursery

Specializing in Rhododendrons and Azaleas since 1926



Van Veen Nursery
P.O. Box 86424
4201 SE Franklin Street
Portland, Oregon 97286-0424
503-777-1734 or 1-800-RHODIES
Email: vanveennursery@hotmail.com

Custom Propagating: Yes we can!
Send us your cuttings (any amount) and
we will send them back to you with roots!

Contact us for details and for our free price
list featuring many heirloom and unusual
plants. Choose from over 500 varieties!

See us at www.rhododendron.org or
www.vanveennursery.com

(100 x 40mm), elliptic, rounded base, broadly acute apex, slightly downcurved margins, olive green above. Shrub 2.5 x 2.5 feet (0.75 x 0.75m) in 8 years; intermediate habit, lvs held 1 year. Plant & bud hardy to -10°F (-23°C). Flowering midseason (early May in eastern Pennsylvania).

(r) 'Elise Anne'

Elepidote rhododendron: unknown parentage. H (c. 1940): Charles O. Dexter, Sandwich, MA; G (1940s), REG (2013): Heritage Museums & Gardens, Sandwich, MA; N (2012): Alyce Morrissey, Belmont, MA. Flrs 6/lax truss, broad funnel, 2 inches (50mm) long x 3.2 inches (82mm) wide with 7 wavy lobes. Bud: moderate purplish pink (68C). Inside of corolla: very pale purple (69A) with pale greenish yellow throat. Outside of corolla: pale yellow green (4D) with subtle light purplish pink (65B) veins. Truss 5.5 inches (140mm) high x 6 inches (150mm) wide. Lvs 4.5 x 2 inches (114 x 50mm), elliptic, rounded base, obtuse apex, flat margins, olive green (137A) above, matte. Shrub 18 feet (5.5m) high x 15 feet (4.5m) wide in 65 years; intermediate habit, leaves held 2 years, floriferous; while individual



Elise Anne'. Photo by Les Lutz.

Whitney Gardens & Nursery

Rhododendrons & Azaleas – Hybrids & Species
Maples, Magnolias, Kalmias, Conifers, Camellias and Perennials

We ship from our garden to your garden.

A new catalogue is available FREE.

P.O. Box 170, Brinnon Washington 98320-0170

Phone: (800) 952-2404 • Fax: (360) 796-3556

E-mail: info@whitneygardens.com • Web Site: www.whitneygardens.com

trusses are modest, a mature specimen in bloom is an impressive presentation. Plant hardy to -15°F (-26°C), bud hardy to -5°F (-21°C). Flowering midseason (late May on Cape Cod). Etymology of name: named after Elise Ann Morrissey, daughter of Alyce Morrissey, member of the Heritage Museums & Gardens Board of Trustees. Synonym: Heritage 286-1969A.

(a) 'Evelyn Potter'

Evergreen azalea: ('CB-1' * x 'Elsie Lee') (s) X 'James Stewart'. H (2001), G (2003), N (2013), REG (2013): Joseph Klimavicz, Vienna, VA. Flrs 2/ terminal, saucer, double, 2.75 inches (70mm) long x 1.4 inches (35mm) wide with #15-18 wavy lobes. Bud: strong purplish pink (62A). Inside: very pale purple (69A) at margins, fading to lighter in center of lobes, with some lobes entirely strong purplish pink (62A); spotted strong purplish pink (63C) blotch on upper three lobes. No stamens, pistils usually deformed. Outside: very pale purple (69A) with occasional strong purplish pink (62A) marks. Calyx 0.4 inch (10mm), strong yellow green (144B). Lvs 2 x 0.8 inches (50 x 20mm), elliptic, cuneate base, broadly acute apex, flat margins,



'Evelyn Potter'. . Photo by Joseph Klimavicz.

ARS SEED EXCHANGE

A seedlist and online ordering form will be available in early January, 2014 at the ARS website (www.rhododendron.org/seedexchange.htm). European members may also view this list at www.rhododendron.dk/ARS_seed.html. Seed sales are open to ARS members and seed donors at this time and to non-members after March 15th. Seed donor orders will be filled first.

The price of seed from the 2014 catalog remains at \$3.00 per packet. Seed collected in Sikkim will be available at \$4.00 per package. A \$3. (US) and \$4. (outside US) shipping and handling fee will be added to each order. Seed Exchange users from outside the US are encouraged to pay by PayPal credit card or by postal money order.

Norman Beaudry, Chairman
ARS Seed Exchange

moderate yellow green (146B) above, semiglossy. Shrub 1.5 x 1.5 feet (0.5 x 0.5m) in 5 years; dense habit. Plant & bud hardy to 5°F (-15°C). Flowering midseason (May in northern Virginia). Etymology of name: Named for the newborn daughter of a business associate.

*‘CB-1’ – not registered. The cultivar was among seedlings discarded by the University of Maryland’s breeding program in the 1990s, acquired by William “Cliff” Brown and shared with Robert Stewart, who assigned the number; no information on its parentage. The seed parent in this registration was hybridized by Joseph Klimavicz, who designated it CL-95-81.

(r) ‘Grace Louise’

Elepidote rhododendron: parentage unknown. H (c. 1960): John C. Cowles, Stowe, MA; G (1960s), REG (2013): Heritage Museums & Gardens, Sandwich, MA; N (2013): Susan J. Hamilton. Flrs 5/lax truss, open funnel, 2.4 inches (60mm) long x 3.5 inches (90mm) wide with 7 wavy lobes. Bud: moderate yellowish pink (38B). Inside of corolla: pale greenish yellow (2D), with two light yellow green flares in upper lobe



Grace Louise'. Photo by Les Lutz.



THE RHODODENDRON, CAMELLIA AND MAGNOLIA GROUP

www.rhodogroup-rhs.org

Become an International Member of the Rhododendron, Camellia and Magnolia Group of the Royal Horticultural Society and join others inspired by the love of these three plant genera.

- Benefit from publications keeping abreast of developments and discoveries across the globe while providing new insights into the past.
- Share in the wealth of seed offered in the annual Seed List – much of it wild collected.
- Take up the opportunity of joining tours in the United Kingdom and abroad.

The Annual Subscription of **£25 (US\$37 approx)** includes the Yearbook – *Rhododendrons, Camellias and Magnolias*, the Bulletin (three times a year) and the Seed List.

Download an application form from www.rhodogroup-rhs.org or contact: Rupert Eley, Highlands House, East Bergholt, Suffolk CO7 6UP, UK. email: sales@placeforplants.co.uk

extending 1 inch (25mm) from base, over light salmon throat. Outside of corolla: pinkish white (N155B). Truss 4.7 inches (120mm) high x 5.5 inches (140mm) wide. Lvs 3.2 x 2.5 inches (82 x 64mm), elliptic, rounded base, acute apex, downcurved margins, dark green (136A) above, matte. Shrub 12 feet (3.6m) high x 10 feet (3m) wide in 40 years; intermediate habit, lvs held 2 years. Plant hardy to 0°F (-18°C), bud hardy to 5°F (-15°C). Flowering midseason (May on Cape Cod). Etymology of name: Named for Grace Louise **Cooke**, mother of **Susan J. Hamilton**, a trustee of Heritage Museums & Gardens. Synonym: Heritage 143-02.

(a) ‘Hampton Ruby Red’

Evergreen azalea: ([‘Ripples’ x ‘Girard’s Hot Shot’] x ‘Girard’s Hot Shot’) (s) X ‘Karafune’. H (1992), G (1995), N (2013), REG (2013): Sandra McDonald, Hampton, VA. Flrs 3/terminal, open funnel, nearly double, 0.9 inch (22mm) long x 1.4 inches (35mm) wide with c.15 flat lobes (typically 5+5+5). Bud: strong red (46A). Inside of flower: vivid red (45A), with a few strong red (46A)



‘Hampton Ruby Red’. Photo by Sandra McDonald.

dots, not conspicuous; occasional stamens and pistil. Outside: vivid red (45B). Calyx: 0.15 inch (4mm), strong yellow green (145A). Lvs 0.8 x 0.3 inch (20 x



R. spinuliferum

Rhododendron Species Foundation

... dedicated to the conservation and distribution of species rhododendrons

Go to www.rhodygarden.org and browse through the mail-order catalog for a wide selection of rare and unique rhododendrons and plants including new introductions.

Remember - anyone can order!

Become a member today and receive great benefits!

PO Box 3798 Federal Way, WA 98063 ~ 253-838-4646

8mm), obovate, cuneate base, apiculate apex, flat margins, moderate olive green (137A) above, glossy, with hairs, not numerous, above and below, pale beige. Shrub 4 feet (1.2m) high x 2.5 feet (0.7m) wide in 20 years; dense habit, lvs held 1 year. Plant and bud hardy to 15°F (-9°C). Flowering midseason (late April, early May at south end of Chesapeake Bay).

(r) 'Jeremiah William'

Elepidote rhododendron: unknown parentage. H (c.1930), G (1930s): Charles O. Dexter, Sandwich, MA; N (2013): Joan O'Connor, Osterville, MA; REG (2013): Heritage Museums & Gardens, Sandwich, MA. Flrs 10/ ball truss, broad funnel, 2 inches (51mm) long x 3.5 inches (89mm) wide with 7 wavy lobes. Bud: deep purplish pink (N57D). Inside of corolla: yellowish white (N155D) in center blending to deep purplish pink (N74C) at margins, with twin deep purplish red (71A) spotted flares in upper lobe. Outside of corolla: deep purplish pink (N74C) with prominent center veins in each lobe. Prominent 2-inch (51mm) pistil, 0.5-inch (13mm) stamens. Truss 6.5 inches (165mm)



'Jeremiah William'. Photo by John Delano.

**Australian
Rhododendron Society Inc.**

www.ausrhodo.asn.au

Overseas members are welcomed - annual dues of \$A25.00 (single) or \$A35 (member & partner) payable by \$A bank draft, Visa or Mastercard, inclusive of the annual Journal "The Rhododendron" airmailed. Admission to Society gardens in Australia. Extra \$A15 charge for regular newsletters unless delivered via email.

Subscription year commences 1st July.

Membership applications to:

THE SECRETARY

**AUSTRALIAN RHODODENDRON
SOCIETY INC.**

**12 Mernda Rd., Olinda
Victoria 3788 Australia**

**The CONIFER SOCIETY
welcomes you!**

Conifers and rhododendrons are natural garden companions

- Add year-round color and texture
- Brighten small garden spaces
- Create living sculptures
- Screen views and create focal points

Visit **www.conifersociety.org** or mail \$30 annual dues to:

American Conifer Society
175 Charisma Lane
Lewisville, NC 27023-9611

high x 6 inches (152mm) wide. Lvs 5 x 1.75 inches (127 x 44mm), obovate, rounded base, broadly acute apex, flat margins, moderate olive green (137A) above, matte. Shrub 8-10 feet (2.5-3m) high x 10 feet (3m) wide in 40 years; open habit, lvs held 2 years. Plant hardy to 0°F (-18°C), bud hardy to 5°F (-15°C). Flowering midseason (May on Cape Cod). Etymology of name: Named after Jeremiah William O'Connor, late husband of Joan O'Connor, a trustee of Heritage Museums & Gardens. Synonym: Heritage 16-06.

(r) 'John Kinssies's Waterfall'

Elepidote rhododendron: 'The Hon. Jean Marie de Montague' (s) X 'Suzy Lou' *. H (1969): Doris Griswold, Kirkland, WA; G (1987), N (2013), I (2013), REG (2013): Griswold Nursery, Kirkland, WA. Flrs 10/dome truss, funnel campanulate, 1.5 inches (38mm) long x 2 inches (51mm) wide with 5 wavy lobes. Bud: vivid red (45A). Inside of corolla: light purplish pink (55C) becoming pale orange yellow (159C) toward center. Outside of corolla: deep pink (52B). Calyx: 1.5 inches (38mm) long, split into two lobes held over the dorsal side of the corolla, pale orange yellow (159C); no apparent calyx around the remainder of the flower. Truss 3 inches (76mm) high x 5 inches (127mm) wide. Lvs 4 x 1.5 inches (102 x 38mm), lanceolate, cuneate base, acuminate tip, wavy downcurved margins, moderate yellow green (146B) above, matte. Shrub 5 feet (1.5m) high x 4 feet (1.2m) wide in 40 years; open habit. Plant hardy to 0°F (-18°C), bud hardy to 10°F (-12°C). Flowering midseason. Etymology of name: Named for a noted Seattle-area landscaper designer.

W.W. NURSERIES

188 VALLEY GREEN DR.
INDIANA, PA 15701-9001

**Over 500 varieties of
Rhododendrons & Azaleas**

Send us our Rhododendron & Azalea
cuttings or seeds!!

Full custom propagation facilities

Can't visit? We do Mail order.

We have Cuttings, Liners, 1, 2 or 3 gallon
Rhododendrons & Azaleas.
Other Nursery stock available.

www.wwnurseries.com

over 50 years plant production &
propagation

E-mail: wwnurseries@hotmail.com

Phone: 724-349-5653

**Sonoma
Horticultural
Nursery & Gardens**

We offer

650 Rhododendron Hybrids
350 Rhododendrons
500 Azalea Hybrids

-plus-

Clematis Dogwoods Magnolias Hostas
7 acres of display gardens
Catalog available on our Web

www.sonomahort.com

-Sorry, we don't ship-
3970 Azalea Avenue
Sebastopol, CA 95472
(707) 823-6832

*'Suzy Lou' – Unregistered hybrid, pink, hose-in-hose with prominent calyx; very difficult to propagate and grow. According to registrant, the plant was given to her father, William (Bill) Griswold, by its hybridizer, but there is no record of its history. It may never have been in the trade.

(a) 'Li'l Sister'

Evergreen azalea: ('Elsie Lee' x 'Dorsett') (s) X 'Helen Curtis'. H (1996), G (2001), N (2013), REG (2013): William L. Clagett, Derwood, MD; I (2005): White's Nursery, Germantown, MD. Flrs 3/terminal, broad funnel, semidouble, 1.25 inches (32mm) long x 1.75 inches (44mm) wide with 10 to 12 (5+5 to 5+7) wavy lobes. Bud: strong purplish red (63A). Inside of corolla: strong purplish red (63A) with moderate purplish red (70A) spotting on upper lobes; stamens somewhat rare. Outside of corolla: strong purplish red (63A). Lvs 1.4 x 0.5 inches (35 x 13mm), elliptic, cuneate base, broadly acute apex, flat margins, moderate olive green (146A) above, semiglossy; moderate yellow green (146C) below. Shrub 4 feet (1.2m) high x 2.5 feet (0.8m) wide in 17 years; intermediate habit, leaves held 1 year, very floriferous. Plant and bud



'Li'l Sister'. Photo by William Clagett.

**Emu Valley Rhododendron Garden
Burnie•Tasmania•Australia**

Over 450 species Rhododendrons including Vireyas; all growing outdoors in a natural amphitheatre setting.

Guided garden tours and membership welcome.

Visit us at: www.emuvalleyrhodo.com
Email: enquiries@evrg.com.au

Our vision is to be a world recognized woodland garden showcasing and protecting the Rhododendron Genus.

Pacific Island Nursery

Specializing in

Hawai'i Grown Vireya Rhododendron

Richard Marques & Sherla Bertelmann
HCR-1 Box 4641
Kea'au, HI 96749
(808) 966-9225

Website: www.Pacificislandnursery.com
Vireya@pacificislandnursery.com

**Certified mail order nursery
Inter-island and mainland shipping**

hardy to 2°F (-17°C). Flowering early season (April in DC area). Etymology of name: Named for the hybridizer's youngest sister. Synonym: 96-2-12.

(r) 'Noyo Star'

Elepidote rhododendron: 'Grandma's Hat' (s) X 'Red Eye'. H (2006), G (2012), N (2013), REG (2013): Kenneth D. Jones, Fort Bragg, CA; I (2015): Forest Lane Nursery, Fort Bragg, CA. Flrs 22/ball truss, broad funnel, 3.2 inches (81mm) wide with 5 frilly lobes. Bud: deep purplish red (71A). Inside of corolla: greenish white (155C) with picotee-like band on all margins of deep purplish red (71A), fading to very pale purple (69D) and a prominent strong greenish yellow (151A) blotch covering bottom half of upper lobe and extending slightly into adjacent lobes. Outside of corolla: deep purplish red (71A). Truss 5.9 inches (150mm) high x 6.8 inches (175mm) wide. Lvs 6.7 x 1.9 inches (169 x 48mm), oblong, rounded base, acute and slightly twisted apex, downcurved margins, dark yellowish green (139A) above, semiglossy. Shrub 3 feet (0.9m) high x 2.5 feet (0.8m) wide in 7 years;



'Noyo Star'. Photo by Kenneth Jones.

The Bovees Nursery

Vireya Rhododendrons
from the South Pacific Islands.
Semi-tropical
(Cold hardy to +32°F)

Unusual woodland & rock garden plants



Mail order and local sales

Website: www.bovees.com
info@bovees.com

Visa & Mastercard

1737 SW Coronado St., Portland, OR 97219
503-244-9341 or 1-866-652-3219

NEW ZEALAND RHODODENDRON ASSOCIATION (INC)

Subscription: 2012

Individual NZ\$40 • Couple NZ\$45 • Overseas NZ\$55

Membership Includes:

- Annual Bulletin
- Newsletters
- Annual Conference
- Lectures and Garden Visits

For further details contact:

Secretary
Pauline Allen
25 Pomona Street
Gore 9710
Southland
New Zealand

Email: nzrhododendron@xtra.co.nz
Website: www.rhododendron.org.nz

intermediate habit, lvs held 2 years. Plant and bud hardy to -10°F (-23°C). Flowering midseason (May in Mendocino County, CA). Best Seedling and People's Choice, Noyo Chapter ARS competition, May 2013.

(r) 'Painted Bride'

Elepidote rhododendron: 'Mrs. T.H. Lowinsky' (s) X *R. calophytum*. H (1996), G (1999), REG (2013): John Doppel, Lenhartsville, PA; N (2013): Tom Ahern, Bethlehem, PA. Flrs 11/ ball truss, broad funnel, 2.25 inches (58mm) long x 3 inches (76mm) wide with 5 wavy lobes. Bud: strong pink (48C). Inside of corolla: white with vivid red (45A) blotch and spots in upper lobe. Outside of corolla: pale pink (49D). Stamens largely absent.



'Painted Bride'. Photo by John Doppel.

Truss 7 inches (178mm) high x 6 inches (152mm) wide. Lvs 6.5 x 2 inches (165 x 51mm), obovate, cuneate base, rounded apex, downcurved margins, olive green, semiglossy. Shrub 6 feet (1.8m) high x 10 feet (3m) wide in 17 years; intermediate habit, lvs held 2 years. Plant and bud hardy to -10°F (-23°C). Flowering early midseason (mid-April in eastern PA).

Meerkerk

Rhododendron Gardens

*Whidbey Island Washington's
peaceful woodland garden...
Welcomes You ~ Daily 9 to 4*

*Mature Rhododendron Arboretum
Hybrid Test Garden
Big Leaf Valley*

Retail nursery open in spring

*Group Tours with reservations
Memberships available
www.meerkerkgardens.org*

**The Azalea Society
of America**

Dues \$25 per year

Includes four issues of
THE AZALEAN

**For more information or
to receive a membership brochure**



Contact: Membership
The Azalea Society of America
1000 Moody Bridge Road
Cleveland, SC 29635-9789
or email azaleabits@yahoo.com

(r) 'Robert Sutherland'

Elepidote rhododendron: 'Ronald Otto Delp' (s) X ('Golden Star' x 'Mezitt's Hardy Yellow' *). H (1994), G (1997): Jack Looye, Niagara-on-the-Lake, Ontario; N (2012), REG (2013): Amherstburg Rhododendron Committee Inc., Amherstburg, Ontario; I (2012): Rhodo Land Nursery, Niagara-on-the-Lake, Ontario. Flrs 12/flattened dome, open campanulate, 2.5 inches (64mm) long

x 3 inches (76mm) wide with 5 wavy lobes. Bud: light yellow (12C). Inside of corolla: light yellow (12C); in upper lobe, moderate red (179A) blotch beginning at base and extending three-fourths of lobe length. Outside of corolla: light yellow (12C). Calyx: 0.25 inch (6mm), light yellow (12C). Truss 5.5 inches (140mm) high x 7 inches (178mm) wide. Lvs 5 x 2 inches (127 x 51mm), ovate-elliptical, rounded base, obtuse apex, flat margin, moderate olive green (137B) above, semiglossy. Shrub 3.5 feet (1.1m) high x 3.75 feet (1.2m) wide in 5 years; intermediate habit, lvs held 3 years. Plant and bud hardy to -15°F (-26°C). Flowering midseason (May in southern Ontario). Etymology: Named after founder of the Amherstburg Rhododendron Committee.



'Robert Sutherland'. Photo by Jack Looye.

Want to Learn About Lilies?

Join the North American Lily Society!
Membership includes four full color
Quarterly Bulletins and a color
Yearbook loaded with information
about lilies.



Dues are just \$20 per
year for us members.
For more information
and to join visit:
www.lilies.org

**NALS Executive Secretary,
PO Box W, Bonners Ferry, ID 83805**



**NORTH
AMERICAN
ROCK GARDEN
SOCIETY**

Benefits of Membership Include:
Beautiful, Colorful Quarterly Bulletin;
Seed Exchange offering Thousands of
Plant Species (including many primulas)
at Low Prices; Spectacular National
Meetings; Opportunity to Meet Gardeners

Send \$30 (on North American
Continent, \$35 all other countries);
Payable in US funds or by Visa/Mastercard
To: North American Rock Garden Society
PO Box 18604, Raleigh, NC 27619-8604
Website: <http://www.nargs.org>

*‘Mezitt’s Hardy Yellow’ – unregistered hybrid; pollen collected from plant thus labeled; name not applied by Mezitt family, and Wayne Mezitt states that without breeder number parentage is not traceable.

(a) ‘Rose Normandy’

Evergreen azalea: ‘Elsie Lee’ (s) X ‘Satellite’ (Klupenger). H (1991), G (1993), REG (2013): Robert Stewart, Springfield, VA; N (2012): Joseph E. Gutierrez, McLean, VA. Flrs 2/ terminal, broad funnel, double, 1.75 inches (44mm) long x 3 inches (76mm) wide with 10-15 wavy lobes. Bud: light reddish purple (74C) at base, paler toward tip. Inside of corolla: light reddish purple (74C), with vivid reddish purple (74B) blotch on upper lobes. Outside of corolla: light reddish purple (74C). Calyx: 0.4 inch (10mm), strong yellow green (144A). Lvs 1.25 x 0.5 inches (32 x 13mm), elliptic, cuneate base, broadly acute apex, upcurved margins, dark yellowish green (136B) above, semiglossy. Shrub 3 feet (0.9m) high x 4 feet (1.2m) wide in 10 years; intermediate habit. Plant and bud hardy to 0°F (-18°C). Flowering midseason. Etymology: Named in honor of the mother of Joseph E. Gutierrez (naming rights acquired in an auction by the Northern Virginia Chapter, American Azalea Society).



‘Rose Normandy’. Description on page 233. Photo by Carolyn Beck.



rareFINDnursery
Purveyors of Fine Plants

A retail and mail order nursery offering rare, unusual and hard-to-find hardy plants for the landscape, since 1998.



Full Color Catalog \$3.00

957 Patterson Road • Jackson, NJ 08527
732-833-0613
www.rarefindnursery.com

ARS 13-14

(r) ‘Ruth’s Sister’

Elepidote rhododendron: ‘Tolstead’s Ma Belle’ (s) X ‘Virginia Delp’. H (2000), G (2005), N (2005), REG (2013): John Doppel. Lenhartsville, Pa. Flrs 13/ball truss, saucer, 2 inches (51mm) long x 3 inches (76mm) wide with 5 largely separated wavy lobes. Bud: dark purplish red (N79C). Inside of corolla: white with strong reddish purple picotee-like edges and a prominent near-black blotch occupying two-thirds of upper lobe. Outside of corolla:



'Ruth's Sister'. Photo by John Doppel.

strong reddish purple (72B). Truss 5 inches (127mm) high x 6 inches (152mm) wide. Lvs 6 x 1.5 inches (152 x 38mm), oblong, rounded base, acute apex, flat margins, medium green above, semiglossy. Shrub 4 feet (1.2m) high x 5 feet (1.5m) wide in 13 years; intermediate habit, leaves held 2 years. Plant and bud hardy to -10°F (-23°C). Flowering midseason (early May in Eastern Pennsylvania). Etymology of name: sister seedling of 'Ruth's Showstopper'.

(a) 'Sandra's Pink Sparkles'

Evergreen azalea: probably 'Dainty Rose' (s) X unknown, perhaps *R. kiusianum*. H (1981), G (1985), N (2013), REG (2013): Sandra McDonald, Hampton, VA. Flrs 3-4/terminal, open funnel, 1.25 inches (32mm) long x 1.5 inches (38mm) wide with 5 flat-margin lobes. Bud: moderate purplish pink (62B). Inside of corolla: light purplish pink (62C) with occasional vivid red (57A) or white stripes or sectors. Outside of corolla: pale purplish pink (62D). Calyx: 0.2 inch (5mm), light yellow green (145C). Lvs 1.1 x 0.5 inches (28 x 12mm), obovate, cuneate base, apiculate apex, flat margins, moderate olive green (137A) above, glossy, with very sparse hairs, above and below, pale tan. Shrub 4 feet (1.2m) high x 3 feet (0.9m) wide in 30 years; dense habit, leaves

When you use the original, it shows.

ORGANIC
A natural in the garden since 1929.

www.espoma.com/videos

held 1 year. Plant and bud hardy to 10°F (-12°C). Flowering early midseason (late April at south end of Chesapeake Bay).

(a) ‘Tidewater Firecracker’

Evergreen azalea: ([‘Ripples’ x ‘Girard’s Hot Shot’] x ‘Girard’s Hot Shot’) X ‘Karafune’. H (1992), G (1995), N (2013), REG (2013): Sandra McDonald, Hampton, VA. Flrs 2/terminal, open funnel, double, 1.25 inches (32mm) long x 2 inches (51mm) wide with c.15 wavy lobes. Bud: vivid red (45A). Inside of flower: vivid red (45A) with inconspicuous strong red (46A) dots; occasional stamens, consistent vivid red (45A) pistil. Outside: vivid red (45A). Calyx: 0.2 inch (4mm), vivid red (45C) on some flowers, strong yellow green (145A) on other flowers. Lvs 1.1 x 0.4 inches (28 x 11mm), obovate, cuneate base, apiculate apex, flat margins, moderate olive green (137A) above, glossy, with pale beige hairs, above and below, not numerous; in some winters lvs strong red (46A). Shrub 5 feet (1.5m) high x 3 feet (0.9m) wide in 20 years; intermediate habit, leaves held 1 year, flowers will burn if not in shade. Plant and bud hardy to 15°F (-9°C). Flowering midseason (late April, early May at south end of Chesapeake Bay).



‘Sandra’s Pink Sparkles’. Photo by Sandra McDonald.



‘Tidewater Firecracker’. Description on page 234. Photo by Sandra McDonald.

Correction

(r) ‘Mary Margaret Haugen’: cf JARS 67:3, p174 (2013). The correct spelling of the hybridizer’s name is Frank Fujioka.

References

Names conform to the rules and recommendations of the *International Code of Nomenclature for Cultivated Plants, Eighth Edition* (2009). Color names are from *A Contribution Toward Standardization of Color Names in Horticulture*, R.D. Huse and K.L. Kelly; D.H. Voss, editor (ARS, 1984).

To register a rhododendron or azalea name:

North Americans: Electronic registration may be submitted at www.rhododendron.org/plantregistry.htm. The site also provides instructions and forms for downloading and completing manually. Those submitting paper applications should use only the current form (revised 2012). The quickest way to obtain paper forms is to ask a friend with Internet access to access the ARS website and print the form and instructions. Questions, completed paper forms, all photographs and requests for paper forms should be directed to Michael Martin Mills, North American Registrar.

There is no fee.

All others: Please direct inquiries to Alan C. Leslie, International Rhododendron Registrar.

**On-line
ARS Journal**

See ARS Website:

www.arsoffice.org

great
for instant
privacy

RHODODENDRONS

—acres and acres—
*now available 3' thru 15'
plus blueberries*

HIDDEN ACRES NURSERY

19615 SW Cappaen Rd. Sherwood, OR 97140
(503) 625-7390; www.hiddenacresnursery.net

2014 Post Convention Tour to Denmark

How many people want to go to Holland, Germany, Denmark & Sweden after the 2014 ARS Convention?

Contact Bill Heller

RED BARN FARM R.I.

2¼ inch transplants, \$3.95 each

A large selection of rhododendrons,
mountain laurel and deciduous azaleas
for sale

Order online at www.redbarnfarmri.com

Broken Arrow Nursery

"We rest on our laurels"

Growers of Rare and Unusual Plants
13 Broken Arrow Rd., Hamden, CT 06518

For mail order visit:

www.brokenarrownursery.com

AZALEA HILL GARDENS & NURSERY

EVERGREEN AZALEAS

*We grow Glenn Dale, Back Acre, Robin Hill, Satsuki,
Huang, Holly Springs and others*

Azalea Liners: 4-inch pots. We ship!

1106 S. Evans Road, Pine Bluff, Arkansas 71602

Phone: (870) 247-1574

Visit: www.azaleahillgardens-arkansas.com

Commercial Members 8/10/13

Ainsworth House & Garden, Bud Bowen, 19130 Lot Whitcomb Drive, Oregon City,
OR 97045

Alderman Library, Sandra Defenbaugh, P.O. Box 400151, University of VA,
Charlottesville, VA

Atlantic Lawn & Garden, Nicholas DiGiando, P.O. Box 121 Jamestown, RI 02835

Bay Laurel Nursery, P.O. Box 66595, Scotts Valley, CA 95067

Beijing Book Co., INC., Periodical Department, 701 East Linden Ave., Linden, NJ
07036-2495

Biblioteque, Jardin Botanique De Montreal, 4101 Sherbrooke est Montreal, QC H1X
2B2 CANADA

BLM, 1300 Airport Lane, North Bend, OR 97459

Blue Sky Nursery, Alice Klammer, 4659 King St., East Beamsville, ON L0R 1B1
CANADA

Brooklyn Botanic Garden, Science Library, 1000 Washington Ave., Brooklyn, NY
11225

Chimacum Woods, Robert Zimmermann, 2722 Thorndyke Dr., Port Ludlow, WA
98365

Chz ARS Polona, Subscription Department, Obroncow 25 03-933 Warsaw, POLAND

City of Bandon, 555 HWY 101, P.O. Box 67, Bandon, OR 97411

Cleveland Public Library, Serials Section - M24, 17133 Lake Shore Blvd., Cleveland,
OH 44110-400

Deems Inc, Gene Bowers, 1194 Center St. N. E., Salem, OR 97301-2523

Det Norske Arboret, Library, Mildevn 240, 5259 Hjeljestad, NORWAY

Dover Nursery, Mike & Maria Stewart, 42125 S.E. Kleinsmith, Sandy, OR 97055-8636

East Fork Nursery, Vivian Abney, 2769 Bethel Church Rd., Sevierville, TN 37876

EBSCO Publishing, EP Ipswich, Editorial Department, 10 Estes St., Ipswich, MA
01938-2106

Edith J. Carrier Arboretum, James Madison University, MSC 3705, 780 University
Blvd., Harrisonburg, VA

Execu-Gifts Inc., Brenda Ziegler, 1490 N.E. Village St., Fairview, OR 97024-3827

F.O.L.A. Bonnie Joachim, 82 Kiel Ave. Kinnelon, NJ 07470-2547

Fillman Road Nursery, Nate & Lollie Radichel, 12020 Fillman Rd. S.E., Rainier, WA
98576

Goodell Gardens & Homestead, Dana Atwood, P.O. Box 156, Edinboro, PA 16412

Hidden Acres Nursery, Norman Brush, 19615 S.W. Cappaen, Sherwood, OR 97140-
8706

Holden Arboretum, Swisher, 9500 Sperry Rd., Kirtland, OH 44094-5149

Huntington Botanical Library, Acquisitions Department, Botany, 1151 Oxford Rd., San
Marino, CA 91108-1218

Institutt for Plante & Miljoevitensk, Universitet for Miljoe & Biovitenskap, Box 5003
N-1432 AAS, NORWAY

Joe Howell, 601 S. Lewis Ave. Tulsa, OK 74119

Korwan's Tree Farm, William Korwan, 148 Egger Rd., Jeffersonville, NY 12748-5201

Lewis Ginter Botanical Garden, Library, 1800 Lakeside Ave., Richmond, VA 23228-
4700

Longwood Gardens, Library, P.O. Box 501, Kennett Square, PA 19348-0501

Medeiros, Michael J. Medeiros, 770 Wapping Rd., Portsmouth, RI 02871

Meerkerk Rhododendron Gardens, P.O. Box 154, Greenbank, WA 98253

Mendocino Botanical Gardens, Mary Anne Payne, 18220 N. Hwy. 1, Fort Bragg, CA 95437

Milner Gardens & Woodland, 2179 West Island Highway, Qualicum Beach, BC, CANADA

Morton Arboretum, Sterling Morton Library, 4100 Illinois Rt 53, Lisle, IL 60532-1293

Nationale Plantentuin Van België - Bibliotheek, Domein Bouchout 1 1860 Meise, BELGIUM

Oliver Nurseries, Scott Jamison, Jed Duguid, 1159 Bronson Rd., Fairfield, CT 06824-2821

PA Horticultural Society, Library, 100 North 20th St., Philadelphia, PA 19103-1443

Pacific Island Nursery, Richard Marques & Sherla Bertelmann, HC - 3 Box 4641, Keaau, HI 96749-9603

Polly Hill Arboretum, .PO. Box 561, West Tisbury, MA 02575

Rare Find Nursery, Ron Rabibeau, 957 Patterson Rd., Jackson, NJ 08527

Robert Smith, 477 False Bay Dr., Friday Harbor, WA 98250

Rosebay Nursery, 6394 Old Allegan Rd., Saugatuck, MI 49453

Royal Botanic Gardens, Kew, Richmond Surrey, TW9 3AE GB UNITED KINGDOM

Sandra Dupret, Tiffany DeVault, 538 Spring Street, Fortuna, CA 95540

Scott Arboretum Swarthmore College, 500 College Ave., Swarthmore, PA 19081-1397

Seattle Public Library, 1000 4th Ave., Seattle, WA 98104-1109

Singing Tree Gardens, P.O. Box 2684, McKinleyville, CA 95519

Smithsonian Instn. Libraries, P.O. Box 37012, Washington, DC 20013-7012

Sonoma Horticultural Nursery, Polo De Lorenzo, 3970 Azalea Ave., Sebastopol, CA 95472

Spring Meadow Nursery, Inc., Timothy Wood, 12601 120th Avenue, Grand Haven, MI 49417

SUNY at Farmingdale, Library Serials Dept., 1250 Melville Rd., Farmingdale, NY 11735-1313

Swets Blackwell Inc., 160 Ninth Avenue, Unit B Runnemede, NJ 08078

Tadeusz Kusibab, Zbyszka z Bogdanca 16 Krakow, PL 31-979 PL P

Taranaki Regional Council, Greg Rine, Private Bag 713 Stratford, Taranaki, NZ 4352 NEW ZEALAND

The Rhododendron Garden, Dianne Bell, 30807 50th Place S.W., Federal Way, WA 98023

University of Georgia, Library, Science Periodicals, 195714 Athens, GA 30602-00

University of Illinois Lib-E, 1408 W. Gregory Dr., Urbana, IL 61801-3607

University of Minnesota, Library, Sereals Records, 309 19th Ave. South 170 Wilson, Minneapolis, MN

University of Tennessee, John C. Hodges Library, 1015 Volunteer Blvd. Knoxville, TN 37996-1000

Van Veen Nursery, Kathy Van Veen, P.O. Box 86424, Portland, OR 97286-0424

W. W. Nurseries, Raymond E. Walyko, 188 Valley Green Dr., Indiana, PA 15701

White's Nursery, Mike White, 22531 Wildcat Rd., Germantown, MD 20876

Whitney Gardens & Nursery, Anne & Ellie Sather, P.O. Box 170. Brinnon, WA 98320

New Members 6/1/2013 – 8/11/13

AZALEA

Edith Farmer

CASCADE

Sally May Hathaway

COWICHAN VALLEY

Lilian Drewcock

Ivan Kring

EUREKA

Jiki Bertsch Betts

FINNISH

Simo Laine Laamanninkatu

Mr. Mihkel Saar Metsa

GREATER PHILADELPHIA

John Grasmick

Jim & Beth Reeves

MASON DIXON

Lawrence & Milbrey Martin

MASSACHUSETTS

James & Diana Hayden

MIDDLE ATLANTIC

James Austin

Robert M. Milles MD

MIDWEST

James W. Appel, Kathleen Hogarth

Yelena & Val Kholodovski

June Mayor

NOYO

Dianna Dahl

SIUSLAW

Dan Frazier

SOUTHEASTERN

Elizabeth Wells

SOUTHWESTERN OREGON

Pat Kerker

SWEDISH

Thorsten Larsson, Ingareds Gard

TACOMA

Brian & Helen Coker

WHIDBEY ISLAND

William Cromley

WILLIAM BARTRAM

Ray & Virginia Lassiter

In Memoriam 6/1/2013 – 8/10/2013

Greer, Terrence

Johnson, Gretchen

Przypek, Sybil

Chapter/District/Special Donations 6/1/2013 – 8/10/2013

Donor	Amount	Source
<u>General Fund</u>		
Middle Atlantic Chapter	\$100.00	In memory of Getchen Johnson
Scottish Chapter	\$40.00	Chapter donation
Pine Barrens	\$1,116.75	Chapter closing funds donated
Middle Atlantic Chapter	\$100.00	In memory of William Constable

Errata:

The biography for author Emily Weissman in the summer issue, page 137, was incorrect. Emily has a BA in Communications from Seattle Pacific University (not the University of Washington) and recently received her Master's in Communications Management from the University of Southern California.

PUBLICATIONLIST

Remember to support your Rhododendron Society. One of the ways you can do this is to buy your books from us! You get to learn and we get to continue to promote our beloved flower

Book	Retail	Member
<i>American Azaleas</i> , Towe	\$29.95	\$25.46
<i>Complete Wit and Wisdom of Norman Todd</i> , The Todd	\$12.00	\$12.00
<i>Daphnes, A Practical Guide</i> , White, hardcover	\$34.95	\$29.71
<i>Dogwoods</i> , Cappiello & Shadow, hardcover	\$39.95	\$33.96
<i>Gardening with Hardy Heathers</i> , Small & Wulff	\$39.95	\$33.96
<i>Greer's Guidebook To Available Rhododendrons</i> Greer, Third Edition, Softbound	\$19.95	\$ 9.98 SPECIAL
<i>Hardy Rhododendron Species</i> , Cullen	\$49.95	\$42.46
<i>Hybrids and Hybridizers, Rhododendrons and Azaleas for Eastern North America</i> , Edited by Philip A. Livingston and Franklin H. West	\$10.00	\$10.00
<i>In Praise of Dahlias</i> , DVD, Mendocino Coast Films	\$25.00	\$25.00
<i>Kalmia: Mountain Laurel and Related Species</i> , Jaynes	\$34.95	\$29.71
<i>Pacific Coast Rhododendron Story</i> , softbound	\$29.95	\$14.98 SPECIAL
hardbound	\$39.95	\$33.96
<i>Passion for Rhododendrons, A</i> , DVD Mendocino Coast Films	\$25.00	\$25.00
<i>Pocket Guide to Rhododendron Species</i> J.F.J. McQuire & M.L.A. Robinson	\$135.00	\$124.95
<i>Rhododendron Handbook, The</i> , RHS 1998		\$50.00
<i>Rhododendron Hybrids</i> (Second Edition), hardcover Salley & Greer	\$59.95	\$47.95
<i>Rhododendron Hybrids on CD</i> , (Third Edition), Salley & Greer	\$34.95	\$26.21 SPECIAL
<i>Rhododendron Species</i> , Vol. IV, Davidian	\$54.95	\$25.00 SPECIAL
<i>Rhododendrons in the Landscape</i> , Nelson	\$29.95	\$15.00 SPECIAL
<i>Rhododendrons of the World</i> , Leach (SPECIAL)		\$100.00
<i>Rhododendrons & Azaleas: A Colour Guide</i> , K. Cox	\$65.00	\$55.25
<i>Seeds of Adventure, In Search of Plants</i> , Cox & Hutchison	\$75.00	\$63.75
<i>Sikkim and the World of Rhododendrons</i> , Pradan	\$90.00	\$85.00
<i>Success with Rhododendrons and Azaleas</i> , Reiley,	\$24.95	\$21.21

Some copies of the *Quarterly Bulletin ARS* from 1962 through 1981 are still in stock.

<i>25 Year Index to ARS Publications</i> (1947-70)	\$4.00
<i>10 Year Index to ARS Publications</i> (1971-80)	\$4.00
<i>10 Year Index to ARS Publications</i> (1981-90)	\$5.00
<i>10 Year Index to ARS Publications</i> (1991-2000)	\$5.00
<i>Journal ARS</i> , Back Issues (if available)	
To U.S. and Canada	\$ 10.00
To all other countries	\$12.00
Commemorative Rhododendron Prints (set of 4)	\$75.00

Above book prices are in \$US.

Prices for books do not include shipping costs.

ADVERTISING RATES

	SIZE	1 TIME	4 TIMES
1"	2-1/4"x1"	\$20.00	\$72.00
A	2-1/4"x3"	\$50.00	\$180.00
B	4-3/4"x3"	\$80.00	\$288.00
Full Page	7-1/4"x9-1/2"	\$325.00	\$1170.00

Color rates quoted upon request.

Above prices are in \$US.

DEADLINE FOR ADVERTISEMENTS:
FEB. 15, MAY 15, AUG. 15, NOV. 15

Send copy or inquiry to:
Sonja Nelson, Assistant Editor
*Journal American Rhododendron
Society*

WRITERS, PHOTOGRAPHERS, AND RESEARCHERS GUIDELINES

Writers, Photographers, and Researchers Guidelines are available for the *Journal American Rhododendron Society*.

GREER GARDENS

Rhododendrons
Azaleas
Japanese Maples
Conifers
Trees & Shrubs

Rhododendron 'Eleanor Moody'

541 686-8266

Order number 800 548-0111
1280 Goodpasture Island Rd
Eugene, Oregon 97401-1794

OPEN ALL YEAR
Visit our display garden

We ship everywhere!

Famous for the Rare and Unusual
www.greergardens.com

Call for Our Color Catalog
Over 4500 different plants

See the expanded ARS book sales department

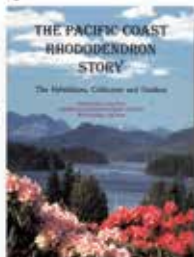
**Just found! Copies
of this rare
interesting book.
Reg. \$30.00
now \$5.00** →
*Free to ARS chapters who to give
away. Just pay shipping*

HYBRIDS AND HYBRIDIZERS

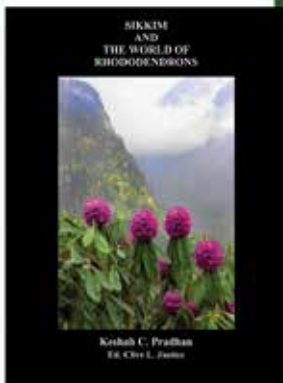
Rhododendrons and Azaleas for
Eastern North America



**The Pacific Coast
Rhododendron Story
70% off**
Was \$29.95 now \$8.98
\$4.00 plus postage to chapters
6 or more copies please



**Brand new book
just out from the
Victoria
Rhododendron
Society - \$12.00**



SIKKIM
AND
THE WORLD OF
RHODODENDRONS

Kathak C. Pradhan
Ed. Chao L. Jones

**Now Available
in soft cover
Only \$45.00**



The Complete Wit & Wisdom
of Norman Hall

**Greer's Guidebook to
Available Rhododendrons**

→
**Regular
\$19.95
to ARS
\$14.95**



See inside the back cover of this Journal for ordering information