# The Yak

Newsletter of the Fraser South Rhododendron Society

Volume 18 Number 2 February 2005


Fraser South Rhododendron Society
is a chapter of the
American Rhododendron Society

Meetings are held at 7:30 p.m. on the third Wednesday of each month at:
United Church Hall
5673 - 200th Street
Langley BC

**www.flounder.ca/FraserSouth**

2005 Officers

| | |
|---|---|
| President: | Bobby Ogdon<br>604-572-9993 |
| Vice Pres.: | Dalen Bayes<br>360-966-4596 |
| Secretary: | Mary-Anne Berg<br>604-853-5737 |
| Treasurer: | Alan March<br>604-532-9062 |
| Directors: | Les Clay - yr. 3<br>Harold Fearing - yr. 2<br>Colleen Forster - yr. 1 |
| Membership: | Wenonah March |
| Newsletter: | Brenda Macdonald<br>604-990-5353 |
| Website: | Chris Klapwijk<br>604-888-0920 |

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|---|---|
| This Month's Meeting : | Wednesday, February 16, 2005 |
| Speaker: | Dr. Peter Wharton |
| Topic: | Plant Hunting in China and Vietnam |
| Companion Plants: | Colleen Forster |
| Show and Tell: | Vern Finley |
| Plant Sales: | Don Martyn |

## Quick Hits

### This Month....

- Norma Senn's "Down the Garden Path" article this month includes information on Franklinia, one of the members of that illustrious trio of gentlemen of the tea family: Franklinia, Stewartia, and Gordonia.

- Colleen Forster's "Companion Plants" article this month is all about Trilliums, which belong either to the Liliaceae family or the Trilliaceae family - depending on whether you are a splitter or a lumper. (It is somewhat reassuring to see that rhododendrons are not the only plants subject to controversy and endless revision of systematic nomenclature.)

- And speaking of systematics, Chris Klapwijk was submitted a copy of the material he has already posted on our website involving recent work in DNA analysis of rhododendrons.

- The 2005 FSRS Membership List will be attached to the mail-out copies and sent as a separate attachment for the emailed copies. Members' addresses, telephone numbers, and email addresses are not posted on the website.

From the President

## Outwaiting the deluge

We smugly gloat to our Eastern friends about their horrendous winter storms, failing of course to inform them that we live in the "land of the continual monsoon." Haligonians (for the uninitiated: residents of Halifax), are settling in for six more weeks of winter while we count the number or crocuses pushing their obstinate heads up into the frigid/soggy February air. All of this activity is dutifully recorded digitally so as to email visual evidence of gardening bragging rights to any Easterners too stubborn to move to Lotus land. In spite of our rose- colored glasses we must acknowledge that we really are not yet tilling the soil nor planting for harvest, as we outwait the usual December-January deluge.

Meanwhile, what do we do to assuage our desires and negate our withdrawal from habitually talking to and caressing our plants? The same as gardeners everywhere regardless of the length of the growing season: we dream of spring planting, itching to get some soil under our fingernails and executing plans to rearrange the landscaping. Restless gardeners, either in Labrador or in Langley, spend their winter evenings perusing seed catalogs and envisioning all the things that might be, in the new growing season. The only persons more optimistic than Chicago Cubs fans are gardeners. Seed companies are well aware of these phenomena, arranging to have their gloriously illustrated catalogs arrive in the depth of winter.

It is at this time of year that I regularly badgered the mail person to rush the delivery of the latest Thompson & Morgan seed catalog. But, beginning 25 years ago another catalog took priority – the catalog from the American Rhododendron Society Seed Exchange. Even though they are bereft of pictures, the seed exchange listings are deliciously described, whetting the appetite for acquiring new additions for the garden.

Until recently the catalogs were routinely sent to all members of the ARS. Five years ago the policy was amended whereby they were sent only to those who requested them. It may have been due to a diminished supply of seeds, or the escalated cost of printing catalogs, or even an increased workload of sorting and handling – you know, the aggravating "small surcharge for postage and handling" common with most mail order products. While the new policy made acquiring them slightly more cumbersome, at least the seeds were still available.

The catalogs follow a predictable pattern: Title page and then information for ordering from the Seed Exchange. Contributors are listed alphabetically. Several pages of "Special Categories" include many submissions from the Rhododendron Species Foundation. Next we find "Species Hand Pollinated," then "Species Collected in the Wild", "Hybrids Hand Pollinated", "Open Pollinated Species", "Evergreen Azaleas", "Deciduous Azaleas", and "Companion Plants". The last page reveals the order form requesting prioritized selections.

Each seed lot is credited to a contributor, indicating the location or site of origin. Hand-pollinated seed listings include the hybridizer's goal or intention for making the cross. When ordering seeds you may cross reference the contributor's location which is particularly significant for species seeds collected in the wild. There is something exhilarating about acquiring rhodo seeds from exotic foreign locales. It is easy to imagine standing amid the line of plant hunters of previous generations, collecting a few hard-to-come-by delicacies of the horticultural world, scaling precipitous heights to glean the neglected seed pods of rare species. It is worth the extreme effort as you return your treasures to your propagation box – the beginning of the process for planting in your very own garden—priceless!

Today, all that is required is a request for, and an order from, a seed catalog. My first order from the Seed Exchange 25 years ago was less expensive than current offerings. Back then open pollinated seed packets were sold for 50 cents, all others were $1.00. Today seeds are marketed for $2.00-$5.00. Is it worth the expense? Consider the time, effort and expense if you truly had to travel to distant shores, and manage the special permits to collect, export, and subsequently import the seed. Few of us could muster the requisite funds. Purchases from the Seed Exchange are indeed a bargain.

My seed acquisitions initially included a variety of species, specifically what many refer to as foliage plants. I was happier than a Cub fan at spring training when the ordered seeds finally arrived. Immediately I planted the new seeds: *R. sinogrande*, *R. makinoi, R. metternichii, R. recurvoides, R. yakushimanum*, and *R. pseudochrysanthmum*. These wonderful species rhodos graced my landscape for 25 years until the property was redeveloped. Every year I ordered other equally desirable additions. It did not take long before my garden was unable to sustain the resultant hundreds and thousands of seedlings produced. That meant I had many more plants to give to friends.

Friends in the wintry East, unfortunately, are not in the loop. Many rhodos cannot survive frequent sub-zero temperatures. I have a slight smirk as I email those pictures of *R. dauricum's* vibrant lavender blooms shining through a light dusting of snow in mid-February. Then I return to study the ARS Seed Catalog and dream of spring.

*Bobby Ogdon*

From the Editor

# Last Month:

Last month was our Annual General Meeting, at which time we elect the Chapter officers for the new year and celebrate the accomplishments and contributions of our Chapter members.

sThe Chapter Officers for 2005 are:

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|---|---|
| President | Bobby Ogdon |
| Vice President | Dalen Bayes |
| Secretary | Mary-Anne Berg |
| Treasurer | Alan March |
| Director 3rd year | Les Clay |
| Director 2nd year | Harold Fearing |
| Director 1st year | Colleen Forster |

The following Chapter members were honoured with FSRS Chapter awards:

The Fraser South Chapter of the ARS is proud to recognize the efforts and energy of **Karen Linton** for the numerous tasks which she undertakes quietly and very efficiently for the Chapter. We are pleased to award her the **Ella J. Crabb Memorial Award** 2004.

The Fraser South Chapter of the ARS is proud to nominate **Brenda Macdonald** for the **Harold Johnson Memorial Award** 2004 for her exceptional efforts as Newsletter Editor that have taken the Yak to new levels of excellence. Yours efforts have made our Chapter a focus of attention worldwide.

The Fraser South Chapter of the ARS is pleased to award **Dixie Mueller** the **Gerry C. Emerson Memorial Award** 2004 for her excellent work as chairperson of the Welcoming Committee, and in recognition of the importance that the chapter has for the work of this committee.

In addition, the Chapter bestowed the ARS Bronze Medal, the highest medal available at a chapter level, on three members, with the following comments:

The Fraser South Chapter of the ARS is please to bestow its highest award to **Dr. Norma Senn**, for her many contributions to the Chapter. She has been a member of the Executive for many years and has served as President for two years. She was Programme Director for many years and was instrumental in bringing to the Chapter's meetings speakers of an exceptional calibre. She is a regular contributor to The Yak and has been an enthusiastic supporter of our bus tours. In addition, she has contributed generously of her professional expertise and her knowledge. She has willingly shared her garden with all members. She is a most valued and esteemed member of the Fraser South Chapter. It is a privilege to award Norma the **Bronze Medal**.

As a gesture of our gratitude for the numerous contributions made by **Colleen Forster** to the activities of the Fraser South Chapter of the ARS, we are honoured to bestow on her our highest award. She has shared her passion and enthusiasm on a regular monthly basis, both at Chapter meetings and in The Yak. Many of her articles have been published in the ARS Journal and read around the world. She has generously donated numerous plants to the Chapter, and is a significant contributor to plant sales. We are pleased to recognize her valued contribution by the award of the **Bronze Medal**.

**Sue Klapwijk** has been a most generous and outstanding contributor to the Fraser South Chapter in many different ways. She has been an active member of the Executive for many years. She has served as Secretary and as the Ways and Means Chairperson responsible for coordinating many of the social activities, including the Annual Picnic and our Christmas Gala. She has contributed numerous plants to the Chapter and has willingly shared her knowledge and expertise. Her efforts have been accomplished in a quiet and thoughtful manner and in an efficient and cooperative spirit. The Chapter is pleased to recognize her vigorous energy by the highest award that we are able to bestow – the ARS **Bronze Medal**.

# Next Month:

The speaker and topic for next month's meeting have not yet been finalized.

*continued on page 4*

# Notes:

***Species Study Days***

The Species Study Days at the Rhododendron Species Foundation in Federal Way, WA, have been confirmed for February 19, March 12 and March 26 (Easter weekend), and April 16. Details are posted on our website. at www.flounder.ca/FraserSouth .

Also, Mike Bale writes:

> "Two members for the Island will be traveling to the mainland Friday evening in order to attend the Species Study Days the next day. If anyone would like the opportunity to provide overnight accommodation, this would be most helpful and would also provide an opportunity to meet and extend our hospitality to other aficionados."

***Errors and Omissions***

Mary-Anne Berg sent me a note which I neglected to put in last month. It seems that organization of the gift exchange portion of the Christmas Potluck Dinner meeting involved a lot of little plastic bags with numbers 1 to 9 in them (a dozen bags to be precise) all enclosed in another bag which also contained the "rules". This grab-bag of organizational material was tucked in behind the Christmas tree for safe-keeping, but when Mary-Anne went to retrieve it at the end of the evening it was gone. Mary-Anne fears that somehow this bag of nonsense was distributed during the gift exchange, and that some poor soul wound up with bags of numbers and very little else. If that totally mystified recipient would like to step forward at the February meeting we would be pleased to award their reticence and forbearance with a plant from the raffle, seller's, or companion plant's table.

***Plant Sellers Schedule***

The following roster has been set up for those of our members who so generously give of their time and effort in providing us with plants to admire and purchase at our monthly meetings:

| | |
|---|---|
| February 16 | Don Martyn |
| March 16 | Harold Fearing |
| April 20 | Sue Klapwijk |
| May 18 | Trevor Badminton |
| September 21 | Colleen Forster |
| October 19 | Les Clay |
| November 16 | Dave Shantz |

***Win a Rhododendron!***

There was much gnashing of teeth at the last Executive meeting over the continuing decline of material in The Yak which is specifically about rhododendron species and hybrids. This is an subject which has been tugging at us for some time now, and one about which we received some comments on last year's survey. The problem is, of course, that The Yak is dependent upon the kindness of contributors, strangers or otherwise, to provide the material that we read.

The answer is simple – more members need to contribute. We dragooned Dalen into initiating our speaker's corner, "Over the backyrd fence ..." because he was there and unable to escape, but we cannot expect the same people to provide material each month. And in order to facilitate this increase in participation, we decided we should offer, well, not exactly bribes, more like incentives.

So write us a little something dear to your heart on the subject of rhododendrons, and we will provide you with free raffle tickets at the next meeting. It can be on any aspect of rhododendrons you like: tell us about your favourite rhododendron, or your least favourite one, or the one you loved but lost; your successes, your failures, how you first became interested in rhododendrons, who inspired you, whose rhododendron gardens you like, and why.

It doesn't have to be very long - a paragraph or so will do it. It's easy. Don't think of it as writing, think of it as talking with a pencil instead of your voice. Just pretend that you are chatting with another FSRS member at coffee time and scribble it down in one swell foop. As an added incentive, this will be the one time when spelling doesn't count – that's my job.

Send it to me any way you want: fax it to 604-990-5354, email it to macdobr#shaw.ca (replace the # with a @ on the address line of your email), or send it through Canada Post (my street address is in the Membership List attached). I will even take dictation over the phone if you speak slowly enough.

Just think, your lucky lottery tickets are waiting for you!

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# Companion Plants

## T is for **Trillium**
## the Lily or Trillium Family
## Family: Liliaceae/Trilliaceae

*Trillium ovatum*

It is a great mystery to me how some common names for plants ever get started. Of course, there are the easy ones –'Monkey Puzzle Tree' and 'Strawflowers', but what about 'Bloody Butcher', 'Stinking Benjamin', 'Wakerobin' and 'Toadshade'? These are all colloquial names for the Trinity Flower – the only name I can certainly understand as all the major parts of the plant – leaves, petals and sepals – all come in groups of three.

The Trillium is a woodland perennial found in many areas of North America, and even right here on the West Coast. I stress 'woodland' because a conventional cultivated garden border would not make them happy. They demand a deep humusy acidic soil with liberal additions of leaf mulch each fall, in a sheltered shady area.

*Trillium erectum*

The traditional white tricorn blooms are common, and pop up from the center of the trifoliate green leaves, on such species as *T. grandiflorum*, *T. cernuum*, *T. nivale,* and our native *T. ovatum*. But for a great contrast, try one of the purple or yellow flowered forms, with the boldly marbled leaves. The most striking are *T. sessile* and *T. luteum*, but other colored forms are available with plain leaves – *T. erectum* or *T. recurvatum*. Petals may be broad and overlapping, or narrow and upright, and the singly borne flowers may be nodding or upfacing. They could be musk-scented, or downright smelly, as is the U.S.Midwest species *T. viride*. Most of these are native to the eastern U.S.A., but do well here also, being hardy to Zone 5. One thing I must stress though (because they are native species, not garden hybrids or cultivated selections), when buying, please be sure that they have been commercially produced, and not raided from the wild.

*Trillium sessile*

TheTrilliums form tidy clumps of foliage standing 1 to 11/2 feet tall except for dwarfs, spreading slowly from rhizomes, and bloom in spring to early summer. Seed should be sown as soon as ripe, but may take 2 years to sprout, and at least 5 more to bloom. Patience!! The clump may be carefully divided in spring but don't expect it to take right off either. Best to plant and leave it alone to spread slowly by itself. The dwarfs, *T. nivale* and *T. rivale*, are quite at home tucked into a shady rockery because of their diminutive size, and like all trilliums, they die down in winter. But what a cheerful and welcome emergence in spring!

*Trillium cernuum*

Visit specialist and cottage nurseries to find these, especially ones with show gardens, and be sure to take spring walks in the forest to see the Coast Trillium in its native habitat, in all its pristine glory.

Happy Planting!

*Colleen Forster*

# more Notes:

*Rhododendron Species Foundation and Botanic Garden*

Correspondence was received from the Species Foundation thanking the Chapter for our membership contribution, and noting that the procedures for allowing free entrance to the garden for members have changed. Previously the Species Foundation sent out a number of free passes to be distributed to local members. However, now any member of the FSRS who wishes to visit the gardens need only mention at the entrance kiosk that he/she is a member of Fraser South Rhododendron Society for a free pass.

*Condolences*

On behalf of all the other members of the FSRS I would like to extend condolences to our member Barbara St. Hilaire, who recently lost her husband.

I would also like to express my regret on behalf of the FSRS at the news of the death of Jack Lofthouse. Jack was a Vancouver resident and long-time breeder, seller, and enthusiast for rhododendrons – developing such well-known hybrids as 'Butter Brickle', 'Pink Petticoats', and 'A Thousand Butterflies'. He had spoken at the FSRS some years ago, and his endeavours on behalf of the rhododendron community will be sorely missed.

*Brenda Macdonald*

## More Ado about Lumping and Splitting or The Evolutionary Tree and the Naming of the Branches, cont'd

Chris Klapwijk has posted on our website, and submitted for publication here for those members who do not have web access, material from the research done by Loretta Goetsch, Dr. Benjamin Hall and others, on the DNA analysis of various rhododendron species. A more preliminary report on this subject was included in the June, 2003, issue of The Yak, but publication of the research paper has now been scheduled and Dr. Hall will be presenting some of their findings at the 2005 Annual ARS Convention being held in Victoria in April.

Since we were not all created equal in terms of the level of structured botanical education we received, and since some of us who did receive a little have become somewhat rusty on the terminology, I thought a brief Cladistic Primer might be helpful.

***morphology*** the study of the form and structure of an organism, that is, how it looks and how it is built

***taxonomy*** the science and rules governing the naming of organisms

***taxon, taxa*** a classification category (taxon) or categories (taxa) for a group of organisms, e.g. family, genus, subgenus, section, species

***phylogenetics*** the taxonomical classification of organisms based on their degree of evolutionary relatedness, most commonly represented in the form of an evolutionary tree, hence ...

***monophyletic*** a group of organisms which includes the most recent common ancestor of those organisms and all the evolutionary descendents of that common ancestor, that is, a single branch and all its twigs. A monophyletic group is sometimes called a ***clade***

***polyphyletic*** an artificial grouping of organisms usually based on form or function but which do not all descend from a common ancestor even though they may have many fundamental characteristics in common. A good example is "all warm-blooded animals", which may appear to be a single group when compared to cold-blooded animals. But since warm-blooded birds descended down the same evolutionary pathway was cold-blooded reptiles rather than the same pathway as warm-blooded mammals, the construct of warm-blooded animals is good only as a description

***cladistic analysis*** in this case, the analysis of the sequencing of base pairs on the same section of the same gene on a number of rhododendron species to determine the degree of evolutionary relatedness, known colloquially as DNA analysis

***orogeny*** the one-word term for the process of the formation of mountains by plate tectonics. The up-thrusting of the Himalayas caused by the collision of the Indian subcontinent into Asia is probably orogeny at its best

***systematics*** the study of the historical evolutionary and genetic relationships among organisms, including 1) the description (identification) of species, 2) the naming of names (taxonomy), and 3) the description of the relationships among and between taxa (phylogenetics)

*Brenda Macdonald*

**Excerpts from, and comments on, a soon-to-be-published paper by:**
**Loretta Goetsch, Andrew Eckert and Benjamin Hall, University of Washington**

Classification of *Rhododendron* species based on morphology has led to a consensus taxonomy recognizing the major subgenera *Azaleastrum, Hymenanthes, Pentanthera, Rhododendron,* and *Tsutsusi*, and three minor ones.

To determine whether these subgenera are monophyletic, and to infer phylogenetic relationships between *Rhododendron* sections and species, Goetsch et al. carried out a cladistic analysis using molecular data, including all groups within the genus. For this purpose, they sequenced a large part of the nuclear gene RPB2-I, encoding a major RNA Polymerase II subunit, and analyzed the data by maximum parsimony, maximum likelihood, and Bayesian methods.

The resulting phylogenies show subgenera *Azaleastrum* and *Pentanthera* to be polyphyletic, and group all *Rhododendron* species (except the two in section *Therorhodion*) into three large clades. Based upon these results, a modified system of *Rhododendron* classification is proposed, consolidating minor subgenera that are related and recognizing monophyletic subgenera.

More than 90% of the 1,025 *Rhododendron* species described prior to 1996 (Chamberlain et al. 1996) belong to the predominately Asian subgenera *Hymenanthes, Rhododendron* and *Tsutsusi*.

The first two of these have many species in the Himalayan-Southwest China region. In addition, the 300 species of section *Vireya* in subgenus *Rhododendron* are distributed mainly through the islands of the Malay Archipelago (Sleumer 1966), extending from their probable origin on the Asian mainland as far as northern Australia.

The geologically recent juxtaposition (< 10 million years ago) of the eastern and western halves of this archipelago raises interesting biogeographic questions for future phylogenetic study of *Vireya* species, as does the Himalayan orogeny (Irving and Hebda 1993) for *Hymenanthes* and *Rhododendron* species of the Sino-Himalayan area.

Rhododendrons of subgenus *Tsutsusi* have a mainly east Asian maritime distribution (Japan, Korea, Taiwan, and east China) with no species in either western Eurasia or North America.

Systematic studies that encompassed all sections and subgenera of *Rhododendron* were initiated by Sleumer (1949) who proposed a comprehensive system of *Rhododendron* classification in the form of a key to subgenera and sections. Subsequently, the conclusions of a number of more narrowly focused morphological taxonomic studies (Sleumer 1968; Cullen 1980; Chamberlain 1982; Philipson and Philipson 1986; Judd and Kron 1995) were incorporated into an alternative *Rhododendron* classification. This taxonomic system is now generally accepted by *Rhododendron* specialists (Cox and Cox 1997) because it embodies the findings of substantially all morphology-based *Rhododendron* systematic studies since 1980.

Significant differences between the Sleumer (1949, 1980) and the Chamberlain et al. (1996) taxonomic systems concern subgenus *Therorhodion*, which Sleumer placed outside genus *Rhododendron*, and the placement of the four species of section *Sciadorhodion*. Based on studies by Judd and Kron (1995), Chamberlain et al. (1996) assigned these species to subgenus *Pentanthera*, while Sleumer merged them with section *Brachycalyx* in subgenus *Anthodendron*, equivalent to subgenus *Tsutsusi* (Chamberlain and Rae 1990). An interesting, although infrequently noted feature of Sleumer's taxonomic key is the proximity of the deciduous section *Pentanthera* to the evergreen subgenus *Hymenanthes*. These taxa both lack lepidote scales and, for both, the new leafy shoots emerge from the axils of shoots from the previous year's growth.

In subgenus *Pentanthera,* the Chamberlain et al. (1996) classification system includes the major section *Pentanthera*, comprising 15 species from the southeast United States plus three from other regions; section *Sciadorhodion*, and the smaller sections *Rhodora* (2 spp., North America), and *Viscidula* (1 sp., Japan). Other than having deciduous leaves covered in hairs, and terminal rather than axillary inflorescences, few morphological attributes link these four sections together (Cox and Cox 1997).

Historically, the most taxonomically problematic rhododendrons have been the subgenera *Azaleastrum*, *Mumeazalea*, and *Candidastrum*. Both classification systems place sections *Azaleastrum* and *Choniastrum*, which share a lateral inflorescence character, in subgenus *Azaleastrum* even though they differ consistently in number of stamens (5 vs. 10) and other characters (Philipson and Philipson 1986).

Because of distinctive floral and seed characteristics, the deciduous taxa *R. semibarbatum* Maxim. (Japan) and *R. albiflorum* Hook.f. (North America), were placed, respectively, in separate monotypic subgenera *Mumeazalea* and *Candidastrum*.

Two studies of molecular systematics across the genus *Rhododendron* have previously been published. The first used sequences from the chloroplast matK and trnk genes (Kurashige et al. 2001), and the second used nuclear ITS Sequences (Gao et al. 2002). As detailed in the Goetsch et al. paper, several of the contradictions between morphology-based *Rhododendron* taxonomy and the RPB2-I phylogeny determined in their paper are also evident in the plastid and ITS phylogenies, although those

publications did not emphasize the contradictions. In their investigation, Goetsch et al. recovered, sequenced and computationally analyzed sequences of RPB2-I from 87 Rhododendron species in order to address several related issues.

First, they set out to test whether the morphology-based sections and subgenera of *Rhododendron* proposed by the taxonomic systems of Sleumer (1949, 1980) and Chamberlain et al. (1996) are monophyletic. A second objective was to resolve, irrespective of these and other taxonomic proposals, the relationships between all *Rhododendron* sections, including subsection *Ledum* and genus *Menziesia* (Kron and Judd, 1990). The monophyletic groups so identified, together with morphological information, provide the basis for a revised classification system for *Rhododendron*, which is described briefly below.

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**Classification**

The results of the Goetsch et al. investigation clarify the phylogeny of *Rhododendron* and suggest that several changes in the infrageneric systematics of *Rhododendron* are warranted. Based upon the molecular data that they and others have obtained, a revised taxonomic system is proposed.

For taxa outside of subgenus *Rhododendron*, this system eliminates three subgenera and two sections that are present in the taxonomic system of Chamberlain et al.

Inclusion of section *Pentanthera* within subgenus *Hymenanthes* reflects the 100% bootstrap and Bayesian support for a clade containing only these taxa.

Sections *Sciadorhodion* and *Viscidula* and *R. vaseyi* (section *Rhodora*) from the discontinued subgenus *Pentanthera* are combined with sections *Azaleastrum*, *Tsutsusi* and *Brachycalyx* to form an expanded and revised subgenus *Azaleastrum*.

Sister groups in this subgenus are the sections *Tsutsusi* (largely evergreen) and *Sciadorhodion* (entirely deciduous).

While the RPB2-I phylogeny places section *Choniastrum* in clade A, as sister taxon to subgenus *Rhododendron*, *Choniastrum* lacks the attribute most characteristic of this subgenus, lepidote scales on the leaves. For this reason, Goetsch et al. propose that *Choniastrum* be considered a separate subgenus.

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Number of species analyzed, grouped by the taxonomic system of Chamberlain et al. (1996)

subgenus *Azaleastrum* Planch.
- section *Azaleastrum* (2)
- section *Choniastrum* Franch. (3)

subgenus *Candidastrum* Franch. (1)

subgenus *Hymenanthes* (Blume) K. Koch
- section *Ponticum* G. Don (20)

subgenus *Mumeazalea* (Sleumer) W. R. Philipson & M. N. Philipson (1)

subgenus *Pentanthera* (G. Don) Pojarkova
- section *Pentanthera* (5)
- section *Rhodora* (L.) G. Don (2)
- section *Sciadorhodion* Rehder & Wilson (2)
- section *Viscidula* Matsum. & Nakai (1)

subgenus *Rhododendron*
- section *Pogonanthum* Aitch. & Hemsl. (3)
- section *Rhododendron* (30)
- section *Vireya* (Blume) Copel.f. (9)

subgenus *Therorhodion* (Maxim.) A. Gray (1)

subgenus *Tsutsusi* (Sweet) Pojarkova
- section *Brachycalyx* Sweet (2)
- section *Tsutsusi* (3)

*Menziesia* Smith (2)

*Empetrum* L. (1)

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**Dr. Hall will present and explain the data analysis behind this proposal at the 2005 Annual ARS Convention in Victoria, B. C. where he will be a speaker in the program on April 29.**

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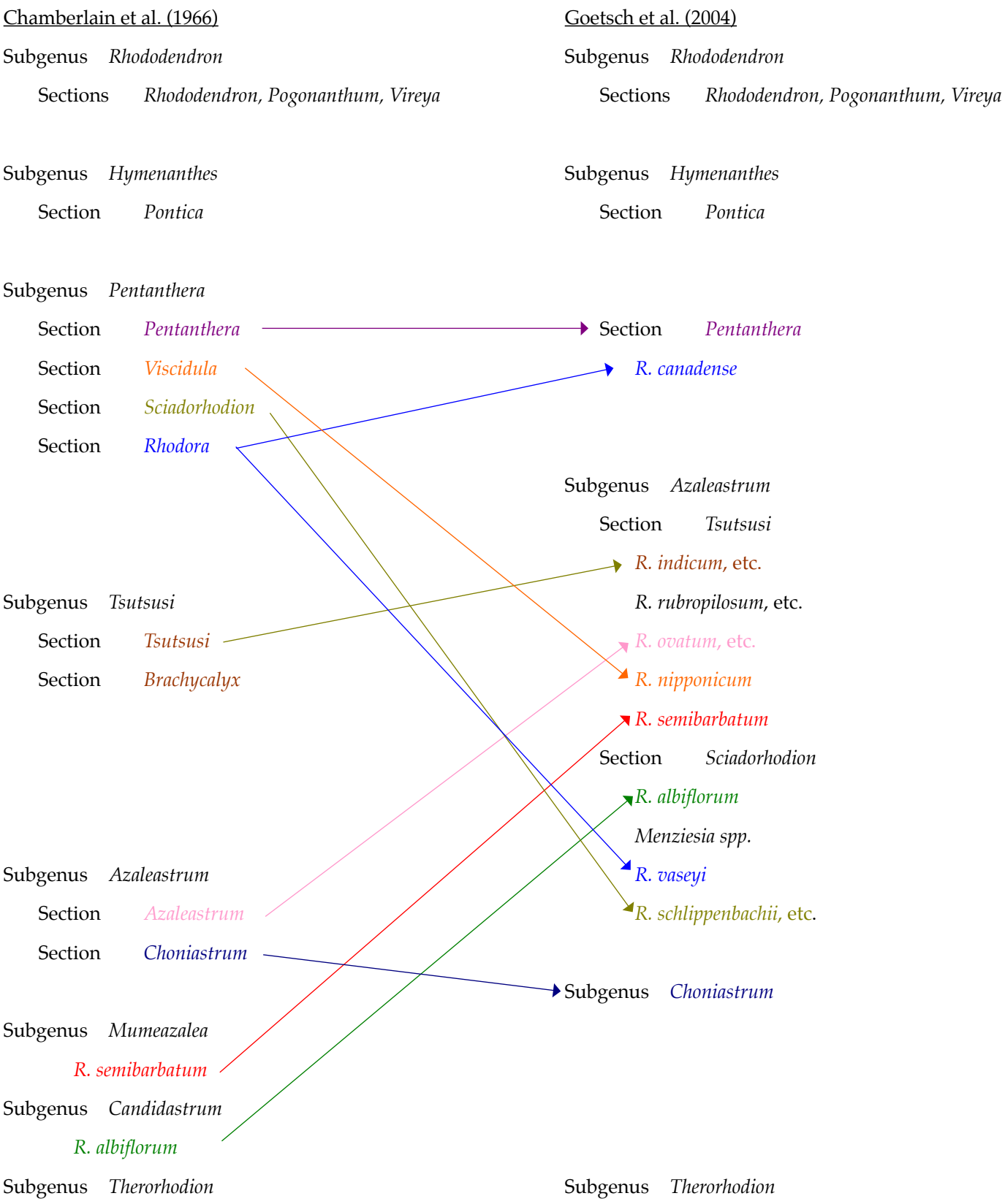
## Classification Based upon Relationships between *Rhododendron* sections and species



# Up the Garden Path with ..... Small Trees for Rhododendron Gardens

February 2005

Small trees make wonderful companions for rhododendrons. As well as offering flowers, fruit, fall colour, bark and vertical interest to the garden, they can also provide overhead shade without overwhelming or out-competing the rhododendron under story. I consider trees to be small if they don't exceed much more than 30 feet in height at maturity, or I sometimes delude myself into including trees that can be taller, but are so slow growing that they remain "small" for decades. Whenever possible, I like to choose plants that add at least two elements to a garden, for example, nice flowers and interesting bark or good fall colour.

In the last few years, I've come to admire the Callery Pear, *Pyrus calleryana,* which is now often planted locally as a street tree. Once established, it tolerates some drought and city conditions. The most commonly planted cultivar is 'Bradford', but other selections are available, like 'Aristocrat', 'Redspire' and 'Capital'. All of these trees just make it into my height definition, reaching between 30 to 35 feet with age.

Before they leaf out in April, Callery Pears are covered in clouds of white flowers, then in the fall, the foliage turns a beautiful shade of deep red. Written descriptions state that trees don't bear much fruit, but the specimens I've seen in our area this past fall bore an abundance of marble-sized, yellow-brown fruit. While it is a true pear, the fruits are of no interest to us for either ornamental or eating purposes, but birds adore them. For best growth, trees need deep, well-drained soils and full sun.

The overall shape of the trees varies depending on the cultivar grown, but with age, *P.c.* 'Bradford' is broadly pyramidal. It also has some resistance to the bacterial disease, fireblight. The other cultivars have been selected for slightly different growth habits, but they are somewhat more susceptible to fireblight. This isn't usually considered to be a serious disease in our area.

While there aren't many disease or insect pests that affect *P. calleryana*, locally there is concern about a disease problem called Pear Trellis Rust. As is the case with many rusts, this disease has two hosts, in this case, Pears and Junipers. The rust is not a serious threat to ornamental pears, but it can cause unsightly fungal fruiting bodies on junipers, and of more concern is that the disease could spread into commercial pear fruit orchards. So, in order to protect both pears and junipers, these two species should not be planted together as the disease can complete its life cycle by moving between the two species. If you are interested in planting a Callery Pear, try to make sure it is at least 250 feet away from the nearest juniper.

*Pyrus calleryana* 'Bradford'

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*Acer buergeranum*

We are fortunate in being able to grow many species of small maples for use as companion plants for rhododendrons; *Acer palmatum, japonicum, davidii* and *buergeranum* (syn. *buergerianum*) are all examples. There are many local gardens that are as famous for their fine displays of these maples as they are for their rhododendrons.

There can be variations, but the small maples generally have good fall colour and attractive growing habits. Many selections are available that have variegated leaves or attractive bark. For example, *A. palmatum* 'Sangokaku' has lovely green leaves with red margins and the young bark is bright coral. Of course, there are lots of red leaved forms too.

At the coast, while small maples can withstand full sun if there is sufficient water, most do better with partial shade. They are not drought tolerant, so soils should have some organic matter to help retain moisture while supplying good drainage. Summer watering may be essential for tree survival and mulching the soil around the root zone may be beneficial. The small maples often develop leaf scorch during the latter part of the summer if they get too dry. This begins with the leaf margins drying out, then entire leaves dry up and premature leaf drop may occur.

There can be problems with scale and aphids, but these are manageable. The most serious problem that can arise with any kind of maple is the fungal disease, Verticillium Wilt. This soil borne fungus infects the xylem, plugging up the water conducting tissue which gradually leads to death of the plant. Death can occur quickly, or it may take a couple of seasons. Often, the first indication of infection is noticed when individual branches suddenly flag, then wilt. The disease often hits one side of the tree, and if you peel back the bark to examine the wood, you will see that the underlying wood is a dark olive green to brown colour instead of the creamy-white or light green colour it should be. There isn't much that can be done to control the disease, however, there are reports that recently infected trees might be saved by applying liberal doses of a soluble nitrogen fertilizer early in the growing season. This treatment is thought to stimulate new leaf growth which in turn stimulates the production of new sapwood, and if done quickly enough, the new sapwood walls off the infected wood.

Sadly, if a tree is heavily infected, there isn't much that can be done to control verticillium wilt. To add insult to injury, this fungus can infect a wide range of plant materials. In the event of a plant dying of the disease, you should replant with a species known to be unaffected by the disease. Lists of resistant species are available in good plant encylopaedias.

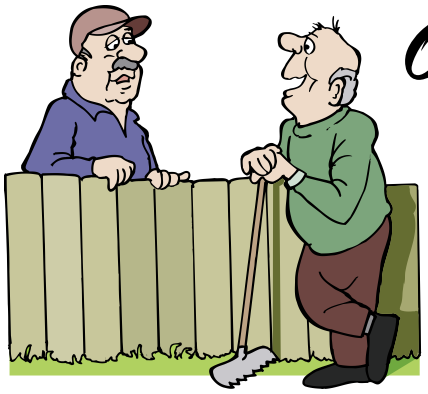
Another good choice for a small tree is *Franklinia alatamaha*. I saw a couple of very lovely specimens in full bloom this past fall, and the large, clear white flowers are spectacular. These deciduous trees also produce good fall colour. It is usually a multi-stemmed tree that grows to between 20 to 30 feet in height. It has a fascinating history. Plant explorers, John and William Bartram, found a small grove of trees growing along the banks of the Alatamaha River in Georgia in 1765. William Bartram returned to the site a few years later and collected seeds which were used to start trees for their Philadelphia garden. They named the tree in honour of their friend Benjamin Franklin. All trees are descended from this original seed collection as *Franklinia* has never been found in the wild since 1803. The Bartrams are credited with saving the species from extinction.

*Franklinia alatamaha*

For best growth, *Franklinia* should be grown in acid soil with excellent drainage and even soil moisture. It does not have drought tolerance, so should be watered regularly if necessary. *Franklinia* can tolerate full sun, but light overhead shade is beneficial and while reliable hardy in our area, protection from wind is recommended. Light mulching is also beneficial.

There are no particular pests or disease problems with this plant, although I have heard from some people that it sulks for a couple of years after transplanting. It also doesn't start to flower freely until it has become well established.

*Norma Senn*



# Over the backyard fence . . .

This last week I have been trying to figure out my favorite rhododendron. It's not easy. My thoughts have gone from 'Taurus' with it's dark green leaves and large red trusses, to the very early blooming rhodos such as *R. dauricum* and *R. mucronulatum*. From *R. bureavii,* with its beautiful orangish indumentum, to those with multi-colored flowers such as 'Lem's Cameo' or 'Nelda Peach'. Then there are the big-leaves with their fantastic foliage, and still others which completely cover themselves with blooms each spring. The possibilities just go on and on. Finally I came up with the one which gives me the most pleasure. It is *R. tomentosum ssp. subarcticum*. "What?" you say, "I have never heard of it." This is not surprising, because until 10 to 15 years ago it wasn't a rhododendron, but a ledum – its common name being Labrador tea. But the botanical wizards merged the genus *Ledum* into the genus *Rhododendron,* thus giving us six new species of rhododendrons.

*R. tomentosum ssp. subarcticum* is found in arctic regions around the world. Occurring from the Aleutian Islands in Alaska to Greenland in N. America. Why they named it *subarcticum* is beyond me because it grows primarily in the tundra beyond the tree line which is usually considered to be the dividing line between the subarctic and the arctic. *Ssp. subarcticum* is a small plant with a prostrate habit, attaining a spread of 20 to 30 cm. and a height of 10 to 15cm in the wild, and somewhat larger in cultivation. The leaves are linear, 1 to 2 cm in length and 1 to 3 mm in width, with the margins strongly recurved and the lower surface covered with a dense rufous indumentum. The individual white flowers are quite small but are held in trusses of up to 20 flowers, resulting in a ball-shaped truss 2 to 4 cm in diameter. It blooms in May here, but in the arctic it usually blooms in July, which fortunately is when Lori and I are canoeing in northern Canada.

It grows in conjunction with cloud berry, dwarf cranberry, crowberry, bog rosemary, and various sedges, forming a carpet as far as the eye can see. The little white pompoms form a fantastic sight. Another plus is that I don't have to fertilize, prune, deadhead or move these ones. There is no worry about weevils, powdery mildew or phytophthora. All I have to do is look and enjoy.

Obviously cold hardiness is not a problem as it grows in places where the temperature can drop to -50C with little snow cover. Cold is only one of the hardships that arctic plants have to tolerate. Others are poor soil, drought, strong winds, frost heaving and a very short growing season. Very few plants can germinate, grow, flower and set seed in a single short growing season, so almost all arctic plants are biennial or perennial. Except for some willows, arctic plants are low growing, which helps them escape the very abrasive blowing snow of winter. Their low profile also allows them to grow in the slightly warmer zone next to the soil which has been heated by solar radiation. *Ssp. subarcticum's* evergreen leaves allow it to begin photosynthesis as soon as the snow melts rather than waiting for new leaves to form.

The common name for the ledums was Labrador tea, from their reputed use as a tea substitute in the old days. I have read different things about the effects of this, from diarrhea, constipation and cramps to paralysis. There are some reports that the leaves contain toxins, but I imagine that a lot of our food contains different toxins in very minute and harmless quantities. The use I liked best was that of the Norwegians, who added it to their beer to make it more intoxicating – smart people, those Norwegians.

*Ssp. subarcticum's* big brother, *ssp. tomentosum* is found in northern regions up to the tree line from North and Central Europe to Southern Siberia. It's larger in all aspects, reaching a height of 1 meter and spread of 1 1/2 meters. A particular clone of it has been selected and propagated by the Rhododendron Species Botanical Garden under the name *R. tomentosum* 'Milky Way.' They advertise it as a fantastic plant for almost any garden. *Ssp. subarcticum* is also sold by RSBG where Steve Hootman calls it "extremely choice." I don't know of any other local nurseries where it can be purchased, but there must be some.

It prefers a sunny to slightly shaded spot and a moist (especially in our warmer climate) soil. My plant is growing in a rather shady corner of my garden. (Shame on me!)

*Dalen Bayes*