"Niagara Rhodo"

Newsletter of the Niagara Chapter,
Rhododendron Society of Canada,
District 12, American Rhododendron Society

Our Purpose: We are a non-profit organization whose aim is to promote, encourage and support interest in the genus *rhododendron.* Our goal is to encourage gardeners to grow and appreciate these plants, by providing educational meetings with knowledgeable speakers, access to topical publications and hosting joint meetings with other chapters.

February - March, 2017 Newsletter

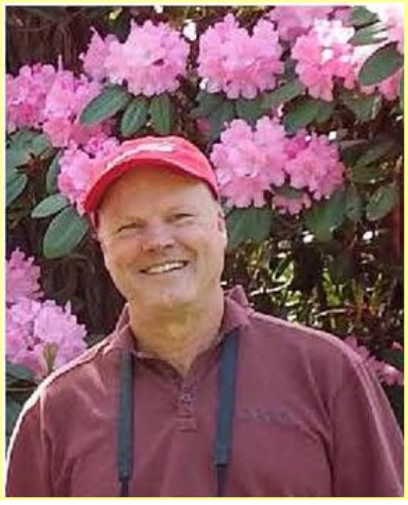
Table of Contents

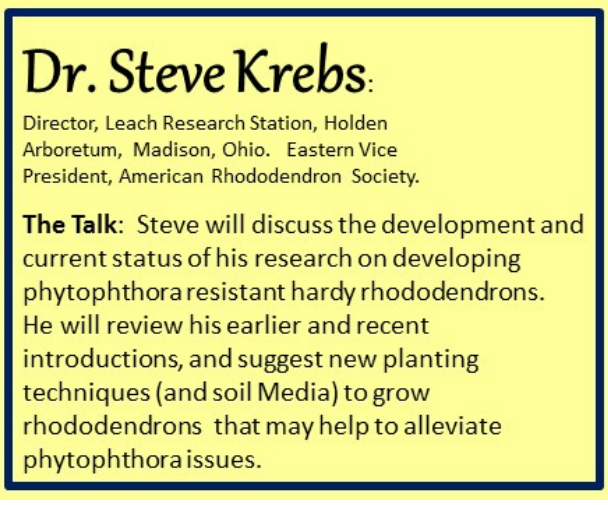
Word of Caution

By becoming a successful grower, the reader will be exposed to a contagion for which there is no cure. Once infected with an appreciation of rhododendrons and azaleas most gardeners spend a lifetime collecting these most beautiful of all plants.

H. Edward Reiley

Program
Sunday 2 P.M. March 5, 2017
Rittenhouse Hall, Vineland Innovation Research Centre
Victoria Avenue, Vineland Station, Just north of the QEW at Victoria Avenue Exit





The Leach Research Station is staffed and equipped to support extensive and diverse display gardens, in addition to large breeding populations and research plots. Under the direction of **Steve Krebs PhD ,** a plant breeder and geneticist, the station maintains its commitment to developing superior rhododendrons for continental climates (i.e. cold winters and hot summers). The traditional breeding program is now complemented by a vigorous research component focused on adaptations of rhododendrons to biotic and abiotic stresses, such as winter freezing injury to leaves and buds, summertime 'bleaching' of leaves (photoinhibition), and diseases caused by fungal pathogens (*Phytophthora* root rot and powdery mildew). The basic questions being addressed are:

- How much natural variation exists among *Rhododendron* species for tolerance to a particular stress?
- What are the genetic and physiological determinants of this tolerance?

- Can stress tolerance be transferred via conventional or modern techniques to a new generation of hybrids that have improved landscape performance under stressful conditions?
- How is expression of these traits influenced by other key features of woody plant biology, such as juvenility and dormancy?

Some like it Hot: Introduction to Steve Krebs' research on Phytophthora resistant cultivars.

by Steve Krebs from the Great Lakes Newsletter, October 2016..

At the Leach Research Station, we have been working for many years on developing rhododendrons that are free from invasive fungus-like pathogen called Phytophthora cinnamomi that hangs out in the soil and attacks and destroys the root systems of susceptible plants in its quest for carbohydrate foods. Once the disease has spread extensively in the roots the above ground tissues, notably leaves, begin to droop and wilt as though the plant were water stressed. In Fact, the plant is water stressed, not because soil moisture is unavailable, but

Rhododendron with wilting symptoms caused by Phytophthora root rot.

Azalea with chlorosis, leaf defoliation and small leaf formation caused by Phytophthora root rot.

because the vascular system (plumbing) to get water from roots to shoots has been destroyed by P. cinnamomi. This pathogen is not just a problem for rhododendrons, but affects over 3000 species of plants world-wide.

Our resistance breeding program is based on hybridizing with a species from Taiwan—R. hyperythrum that is very resistant to root rot and transmits that trait well to its offspring. In addition, R. hyperythrum is very heat

tolerant, and hybridizers like John Thornton in Franklinton, LA have been successful in using it to breed rhododendrons adapted to the Gulf South (USDA hardiness zone 9). His hybrids are now in the trade under the Southgate™ brand.

For consumers, root rot resistance is a valuable trait that would make rhododendrons much easier to grow. For commercial growers heat tolerance opens a new (southern) market for rhododendrons. In our estimation, both traits are achievable because they are probably functionally related. Disease resistance may be a key component of heat tolerance because disease pressure increases where the climate is warmer and wetter. To put this idea into practice, we developed a system where the R. hyperythrum derived breeding populations are first evaluated in NE Ohio (for field performance, ornamental traits, and cold hardiness), then the best selections from these populations are replicated (by rooting stem cuttings) and planted in a field trial in southern Louisiana. Our cooperator in this project is Plant Development Services Inc. (PDSI) based in Laxely, AL, producers of the Southgate™ rhododendrons and the well-known Encore™ azaleas.

Rhododendron-Phytophthora Root Rot Source: https://pnwhandbooks.org/node/3437

Caused by Phytophthora cinnamomi, P. cactorum, and P. citricola, fungus-like microorganisms carried in plants, soil, or water. These fungi have a wide host range, including azalea, mugo pine, Taxus (yew), and heather, just to name a few.

Poorly drained, waterlogged soil, plastic ground covers, or media favors these water-mold organisms. They survive unfavorable periods as oospores or chlamydospores in plant debris. These spores can persist several years. Long-distance movement of infected plants and/or soil can spread the microorganism, as well as contaminated plant debris, potting media, or water. Spores germinate and produce sporangia and a swimming spore stage called zoospores. Their build up is greatest under saturated conditions. These spores are attracted to the fine roots where they attack and begin to rot the root system. After infection, the microorganism spreads, mainly in the inner bark tissues of the root and stems. Warm temperatures, as well as high water salinity or pH, favor disease development.

Root rot can continue from the roots up through the root crown to stems. The edge of the advancing lesion is distinct from adjacent unaffected tissue. The infected root tissues in this area are generally dry with various shades of brown to reddish-brown or cinnamon colored while the healthy tissue is moist and light colored. On the left hand image, the top picture shows wilting symptoms while bottom picture of the same plant (*Rh.*'Taurus') shows the transition zone with discoloration of the cambium below and healthy above.

In the landscape, rhododendrons planted at the bottom of a hill, where water collects due to poor drainage, are likely candidates for infection by Phytophthora cinnamomi.

Sharp rapid drainage is critical for effective Rhododendron culture.

Other Phytophthora-like Symptoms: Dieback

From time to time we have observed single branches of a rhododendron exhibit symptoms of drooping leave while the leaves on remaining branches appear to be vibrant. After several weeks, the leaves on that branch turn brown. For some time we have attributed this phenomenon to Phytophthora and referred to it as "Phytophthora dieback". Of course, we would cut back the branch and all seemed to be well; except that in the following year another branch of the same plant exhibited identical symptoms. Again, we would cut out the affected branch. In some cases, the plant eventually lost all of its branches and had to be removed.

Recently, while researching symptoms and causes of Phytophthora we came across an article, Azalea & Rhododendron Diseases, from the Clemson University Cooperative Extension, that explained the dieback issue as follows:

Dieback is an important disease of hybrid rhododendrons in the landscape and is caused by the fungus *Botryosphaeria dothidea*. Azaleas with similar symptoms are more likely to be infected by the fungus *Phomopsis* species. Typically, dying branches (stem dieback) begin to appear on an otherwise healthy plant. The leaves die and can remain attached to the plant until late summer. The photo shows a Botryosphaeria infected rhododendron. Usually a single branch on an established plant is affected. Scraping away the bark with a knife reveals a reddish-brown discoloration under the bark of dying branches of rhododendron. On azaleas the discolored wood under the bark appears chocolate brown.

To paraphrase Shakespeare. . . .Whatever its name, the effect is the same. The plant will die. Dieback is difficult to control on rhododendrons and azaleas. Some rhododendron varieties are considered resistant: 'Boursalt,' 'Chionoides White,' 'Cunningham's White,' 'English Roseum,' 'Le Barr's Red,' 'Roseum Two'. No definitive list of resistant cultivars seems to be available. **The authors of the article do suggest some preventative strategies**: Reduce stress to the plants by planting in partial shade and watering during dry periods. Drought stress and freeze injury may predispose plants to infection. Avoid wounding the plant. Prune infected branches well below all discolored wood and dispose of dead plant material. Clean pruning tools between cuts with a dilute solution of household bleach (1 part bleach to 9 parts water) or 70% rubbing alcohol. Fungicide sprays containing either thiophanate-methyl or mancozeb or any product containing a copper-based fungicide may be used. Unfortunately, these chemicals are not likely to be available to Ontario home gardeners. Also, they are not likely to be safe for use by untutored individuals.

What's Happening to the Weather? *Edited from original material by Scott Sutherland Weather Network*

No, dear reader, this is not going to be another diatribe in support of Global Warming. Nor is this going to be a presentation of "alternative facts". Rather, I hope you will allow me to indulge my "wannabee meteorologist's" pursuit of understanding the weather and its impact on growing things. As I was about to close out this month's newsletter, I spied that the temperature, in the shade, on my garden wall read 16°C. Yes on February 19, 2017 at about noon that was the temperature recorded on the border of St. Catharines Golf & Country Club and Highland Avenue.

When I turned to the Weather Network web site for enlightenment, I found several articles dealing with recent weather events. One reported, "January 2017 was the 3rd hottest month in recorded history since 1880". **NOAA stated that January averaged +0.88ºC above the 20th century average** while **NASA reported the January average as +0.95ºC above the 20th century average**. The discrepancy, apparently was caused by the ways the two agencies calculate averages**!!** In 137 years of record-keeping, only January 2007 and January 2016 were warmer. *(Figure 1)* Furthermore, ``this was punctuated by extreme warmth over parts of the northern hemisphere, and record lows for sea ice at both ends of the Earth.

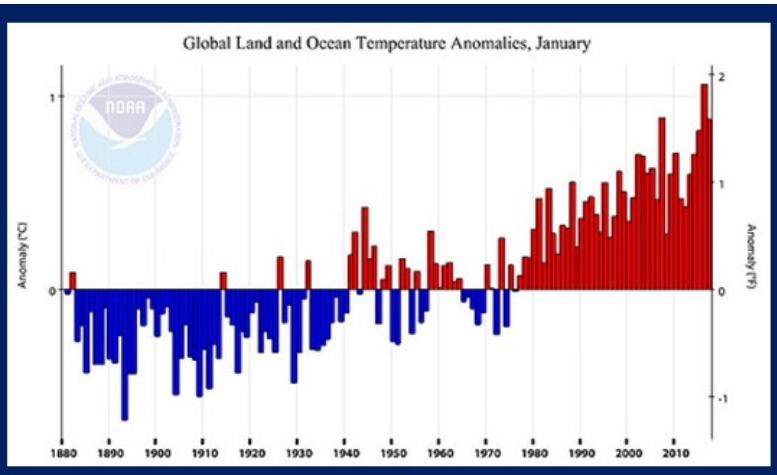


Figure 1

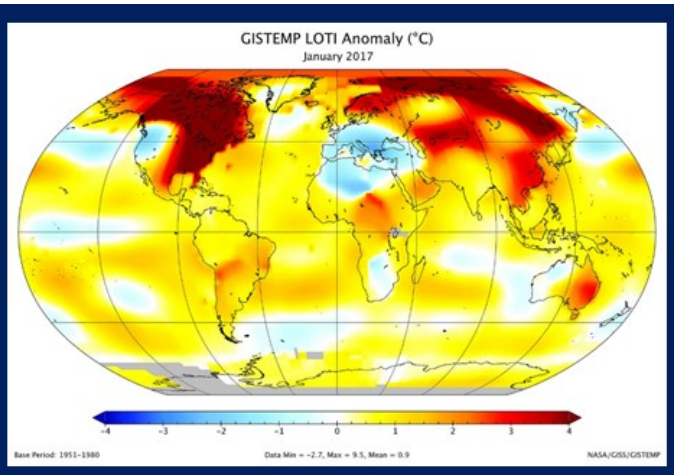


Figure 2

Figure 1 Temperature anomalies by month, 1880 to 2017.

Figure 2 Temperature anomalies world-wide for January 2017.

Figure 2 reveals some widespread hot-spots in certain parts of the globe. There were intense blobs of heat over northern and eastern North America, and over Siberia. The pattern over Canada was felt particularly keenly, with the repeated snowfall events in the west and the January thaw in the east. Even the hottest regions on the map were only around 4 or more degrees Celsius warmer than normal, on average. So, this was not going to break winter, where temperatures can get down into the minus 20s and minus 30s, at least. Warmer air does hold more water vapour, though, so being 4-5ºC warmer than normal raises the moisture content of the air, providing more water to be frozen into snowflakes.

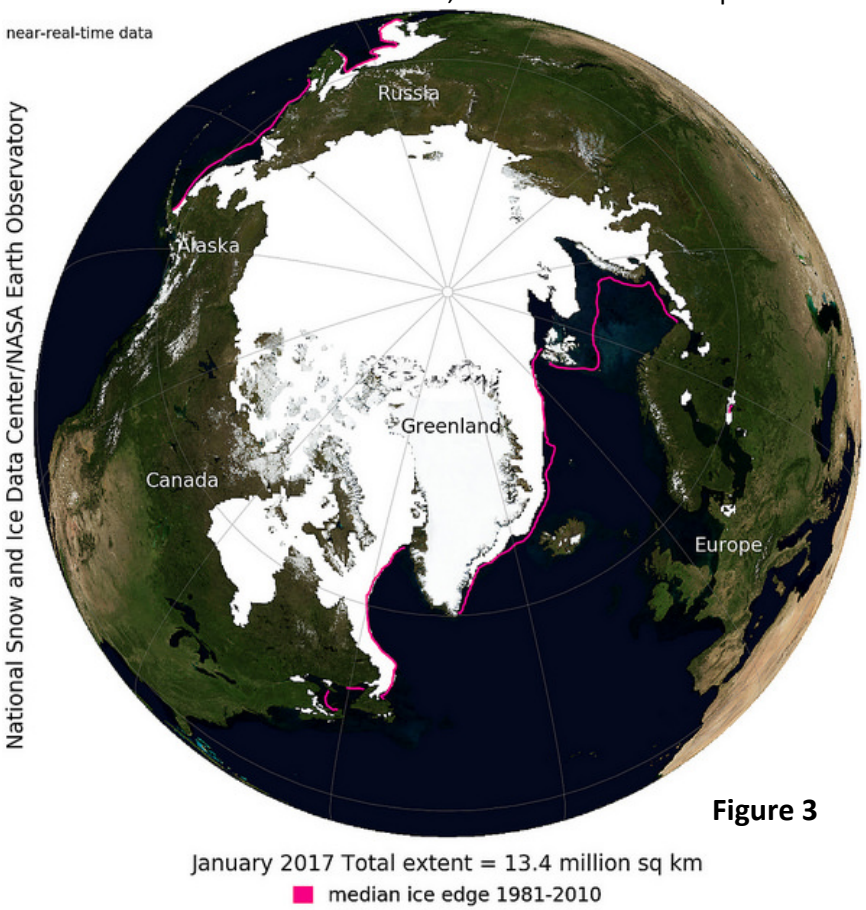


Figure 3

Whereas snow coverage in Canada was up in January, sea ice (Figure 3) was down to record lows. This wasn't just the Arctic, which has been suffering for years now, sea ice extents at both poles were at record lows for the month.

While all this is interesting, in general the latter half of 2016, from September through December, saw cooling temperatures across the globe, even though Niagara was cooling, as we exited one of the strongest El Niño patterns on record and slipped into a fairly weak La Niña pattern in the Fall. By December, 2016, global monthly average temperatures were down around 3rd-warmest and thus January has continued that trend.

This continued trend of "non-record-setting temperatures" from late 2016 into 2017, is not, however, a signal that global warming, and the climate change that results from it, has slowed down or stopped. Carbon dioxide continues to build in the atmosphere due to human activities, and the extra heat from that continues to accumulate as well. The temperature fluctuations of these normal phenomena - El Niño and La Niña - are simply riding atop this extra heat, currently elevated by roughly 1°C, which makes the hot fluctuations more extreme, and the cold fluctuations less extreme.

As of now, as we progress through the latter half of Winter and into Spring, it's actually looking as though we may flip right back into an El Niño in the Pacific. If this does develop, it's doubtful we'd see a very strong pattern, so it (probably) won't rival the 2015/2016 event (although it is a bit too early to tell).

For the rest of 2017, even from our vantage point this early in the year, we can still tell that we're unlikely to see another record-breaking year. 2016 will retain its title as "hottest year on record" at least for a short while, and 2017 is expected to come in as - at least - one of the top five hottest in the books.

What's happening to the Ice Cover on the Great Lakes? Readers will recall Kevin Kavanagh's talk in 2015 when he described in vivid detail the impact of the first and second Polar Vortices on plants and on ice cover of the Great Lakes. On January 31, 2017, 5:07 PM - Ice cover on the Great Lakes is at a near-record low, thanks to the January thaw, but watch out for what happens to the lakes over the next week!

Back in November, the Great Lakes were extremely warm.

This was the warmest the lakes had been in 16 years, and it has contributed to some of the lowest lake ice coverage on record for this winter season.

As of January 30, lake ice was only slightly below where it was just one year ago, but less than a third of what was on the water back in 2015.

Also, for the week ending January 29, 2017, the Canadian Ice Service is showing that lake ice is at its fourth lowest level since 1981, after 2006, 2002 and 1995

With the chilly air temperatures through December and, at times, in January, this has meant significant lake effect snow for southern and southwestern Ontario.

Based on what the forecast looks like, however, lake ice is set to grow, possibly to its largest extent so far this season, due to the temperature plunge that's setting up for our near future.

Even with all of the open water so far this season, the Great Lakes have managed to avoid having the lowest maximum extent on record. According to NOAA's Great Lakes Environmental Research Laboratory, they reached 13.5 per cent coverage on Jan 16, 2017, compared to a seasonal max of 11.9 per cent in 2002 and 12.9 per cent in 2012.

Still, depending on what happens in February, the lakes may struggle to get out of the bottom five years in the record books.

Evaporation from the lakes is driven by the difference in the temperatures of the water and the air. The higher the water temperature, compared to the air, the greater the amount of evaporation there will be from the lakes.

Looking ahead, towards summer, this could mean another year of low water levels across the Great Lakes, due to the effects of evaporation.

The next NOAA outlook for the rest of 2017 will be available on February 27, 2017. We hope to have a careful examination of what to look forward to in our March Newsletter.

Tom Laviolette - The meeting of February 5, 2017

Editor`s Note: *On February 5, 2017, some 56 gardeners were treated to a delightful talk by Tom Laviolette, Retired Director of the Niagara Parks Botanical Garden and its associated installations. The talk dealt with the redevelopment of his own garden in St. Catharines, Ontario and landscaping on his daughter, Rachelle's new garden, a few doors down from his and spouse, Sharon's, home. Tom also shared several pictures and experiences of their trip to Bhutan in the Himalayas.*

Two reporters, both members of the Chapter, were invited to provide their insights into the talk. We present their lightly edited reports in two parts.

by Angela Calixto: Despite his stated concern that this was his first presentation to a garden club since his retirement in 2011, Tom displayed his inimitable style by delivering a talk that nicely complemented an array of interesting photographs, with relevant design tips, plant information, and solutions to some of the problems that he encountered.

His one acre property backs on to Fifteen Mile Creek. His house faces east, in an area that has no side walks or street lights. He claims to be blessed to buy the maturity of the property, which carried an added bonus of being on a narrow country road. Several groups of tall and mature Picea abies line the entrance to the property and Thuja occidentalis (white cedars) act as privacy barriers along the street.

When the property was purchased in 1998, the large front yard had only one lone lilac shrub within the Spruce and cedars trees. Also, it was turfed from the house to the road.

Over the years Tom developed a landscape that is functional, aesthetically pleasing, and respectful of nature. The private property now boasts of several varieties of rhododendrons, azaleas, flowering dogwoods, shrubs, and trees of varying ages, many of which are not easy to find in local gardening shops. An unfinished prototype of a huge metal trellis similar to those at the Niagara Parks Botanical Gardens now greets you as you enter the property.

Photos by Tom Laviolette

Currently some of the plants in the garden include *Pinus Bungeana, Cornus Nuttallii Pacific Dogwood, Cornus Florida 'Cherokee Princess', Azaleas (Gold Light, Rosebud, etc.), Azalea Stewartstonian, Hamamelis 'Arnold Promise', Magnolia Virginiana 'Satellite', Rhododendrons (Boule de Neige, Gloxineum, Roseum Elegans, Scintillation, Pearce's American Beauty, Lady of June, etc.), Inula recemosa 'Sonnenspeer' , Prunus laurocerasus 'Zebelianum'*.

Tom initially bulked up the garden soil by using leaves from the native red and black oak trees that populate the ravine going down to the creek as well as his neighbours oak leaves. He also requested landscape contractors to bring him their red oak leaves. He estimates that about 30 to 40 cms in height of leaves went into the gardens.

Although the property is blessed with sandy loam soil, there was an absence of water for use in the garden. He addressed this challenge by installing an elaborate irrigation system that included 135 sprinkler heads driven by 5 horsepower water pump, allowing him to draw water from the Fifteen Mile Creek which is carried some 650' up to the gardens. While, for many years, there was an abundance of water from this source, in 2016, sadly, Tom ran out of water in July; the creek dried up for lack of rain and heavy use by local farmers.

The talk was peppered with anecdotes about methods of plant acquisition and dealing with insects. Early on, in developing the garden, Tom was provided with an opportunity to acquire several 20 and 25 year old rhododendrons from a breeder's collection. With the assistance of students, Tom moved these plants from Fonthill to his St. Catharines site; Some 60 to 80 hours of labour being required to complete this task. He named one of these plants R.Budless Wonder. It was unnamed, its parentage unknown and bloomed 15 years after being transplanted. He dealt with sawfly infestation of deciduous azalea, Golden Lights, by pruning it down to 30cm from the ground. The resilience of deciduous azaleas is evidenced by the stubs producing a fine collection of new branches. He engaged the audience in discussion of treating scale on rhododendrons. No solution was concluded, but he did caution against the use of jet streams of water as this could cause spreading of the infestation to nearby plants. He ended this segment of his talk by showing a picture of his lawn severely damaged by moles, his next challenge to control.

Interwoven into Tom's presentation were planting and design tips, among which are:

- Consider the colour of the exterior material of the house. In his case, the ochre colour of the brick was carried into some of the flowers and branches of plant materials in the front yard.
- Soften or break up the harsh corners of the house (especially around the front entrance) by using containers with plants that have colour palettes complementing the brick of the house.
- When planting more than one of a single variety, buy the plants at different stages of growth.
- Tom said that he does not become too scientific in his planting. He uses the principle of layering in his designs, and considers and includes the existing scenery as part of the design. He asserts, "Let nature self-seed. Let it give you some surprises".
- Use echoing of plants.
- Use plants effectively. In his own application, he has goals for certain plants, e.g. serving as a background, serving as future screens for privacy or property enclosure while continuing to add beauty to the landscape. This includes anticipating what will happen to existing plants that will ultimately be replaced by the new ones.
- When planting in clay soils, use raised beds with excellent drainage and lots of organic matter.
- Current practice in Tom's garden suggests Rhododendron deadheading is mostly for aesthetics, thus not necessary to do.

Rachelle's Garden

This is a mature property on the same side of the same street, also bordering on Fifteen Mile Creek. Tom thought it appropriate to plant rhododendrons due to the presence of the existing mature tall

white pines. Eighty-five rhododendrons, obtained at the Chapter`s 2016 spring sale, were planted strategically. He explained their anticipated future utility as contributing to a potential privacy screening.

This property has several hickory trees and Juniperus Virginiana, (eastern red cedar) along with many deciduous and coniferous trees. Tom and Rachelle planted several azaleas on the slope to enhance what nature has already provided.

In 2016 part of the property was graded and cleared of some large dead trees. Vinegar was used to help kill some unwanted vegetation and the ground was seeded with grass seed. Recently a diseased crab apple and a large red pine killed by Ips beetles was removed. A new granite front walkway was also built last fall.

Some of the recently planted trees and shrubs include Picea abies, Larix laricina, Viburnum plicatum f. tomentosum, and Nyssa sylvatica which produces some of the best red fall colour .

His next project is to remove a giant ash tree which, of course, he said, will be looked upon as another opportunity. He also found a well which he intends to reinvigorate for future use. In the meantime, Rachelle has been hauling 5-gallon jugs of water to nourish and stabilize her new plants.

Bhutan Tour

Editor's Note: Tom and his spouse, Sharon, travelled to Bhutan for three weeks in 2015. The Kingdom of Bhutan is the smallest state in Asia and it is entirely located within the Himalaya mountain range. 70% of Bhutan is covered by virgin forest. It is located in the Eastern Himalayas and is bordered by China in the north and India in the south. It lacks a border with nearby Nepal due to the Indian state of Sikkim and with Bangladesh due to the Indian states of West Bengal and Assam. It is geopolitically in South Asia and is the region's second least populous nation after the Maldives. Thimphu is its capital and largest city. *Source: Wikipedia.*

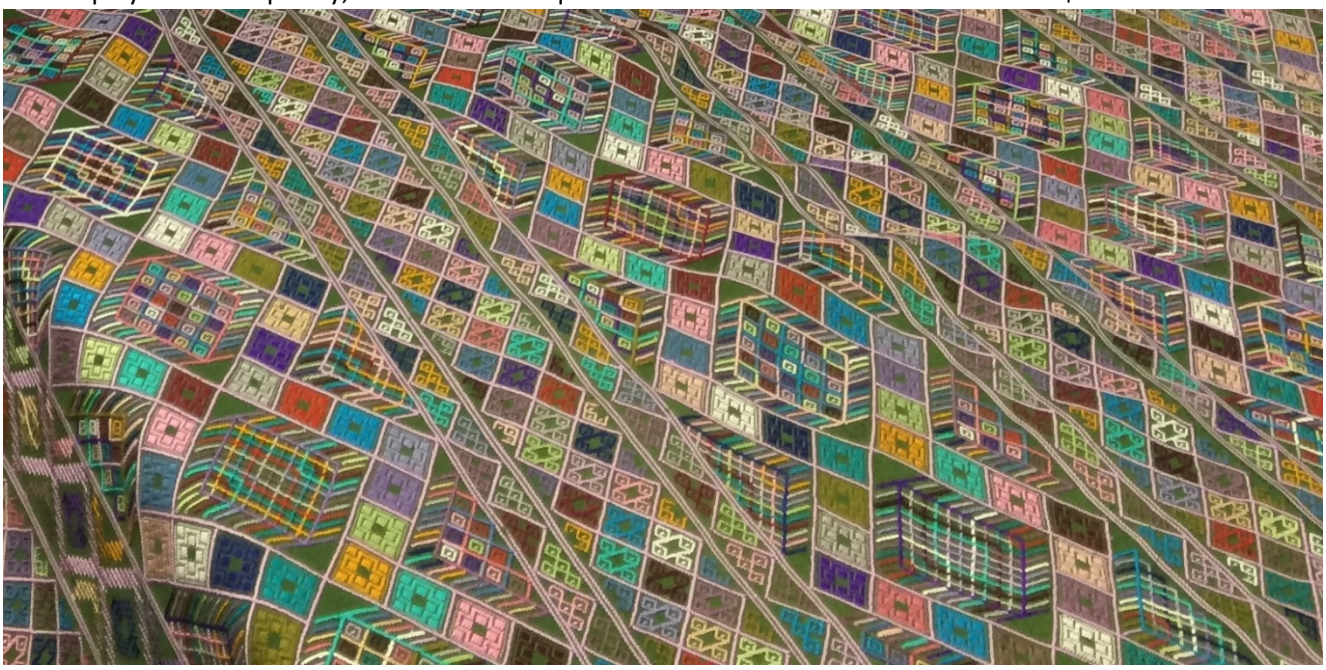
Tom showed a collection of beautiful scenes of majestic mountains, native plants including abies, rhododendrons and magnolias along the road and mountain sides, magnificent falls, even a young woman and her loom working on silk tapestries. The rhodos were growing on what appears to be

crevices among the steep mountain slopes. The photo of Tigers Nest Temple high above the mountain was taken from a spot that allowed it to be beautifully framed by Rh. arboreum.

Although his trip was not to search for rhododendrons, Tom visited the Native Rhododendron Garden, Royal Botanical Park. In Bhutan, there are 46 species of rhododendrons, 29 of which are native and can be found in the Royal Botanical Park. He cited a book full of coloured illustrations, Wild Rhododendrons of Bhutan by Rebecca Pradhan.

During his travel, the mountain roads were being widened (none of the roads were asphalted), and big equipment removed the vegetation, mostly rhododendrons, along the way. What a contrast; in Canada we have to pay so much to obtain these plants, most of them species, while in Bhutan, they are pushed down the mountain slopes in the name of progress**!**

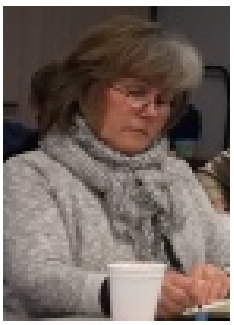
Tom displayed a silk tapestry, a souvenir he acquired in Bhutan. This work of art cost him $US4000. It took 2



years to create; handmade on a rudimentary manually operated device. It is very common for Bhutanese women and girls to work for hours daily, at these hand looms, weaving clothing, scarves and other items for personal consumption or for sale. The fibers mainly used are silk and cotton, though sturdier yak hair is used for water-resistant items such as tents and coats. The designs are original, intricate, done in vibrant colours. In the case of this tapestry Tom's sample was exquisite silk incorporating several colours including deep purple, olive green, red, yellow, magenta and brown, chosen at the discretion of the weaver, without repeating any part of the design within the weave. Besides raising a family, working the rice fields and tending home responsibilities, many women weave for a source of income. Receiving $4000 US dollars to create this tapestry in two years, considering 6hrs of work per day over 2 years, this equals just over $1.09 per hour.

Concluding his talk, Tom invited the audience to visit his property in the spring to assist him in identifying plants.

Tom Laviolette`s Key Situational Factors and Design Recommendations.



by Liz Malicki

Tom Laviolette presented a comprehensive account of the evolution of his mature garden, as well as review of how he went about developing his daughter's new garden. Discussion of the challenges, successes, and the design considerations for optimal horticultural successes provided insights into fine-tuning existing gardens and strategies for on-site development.

Situational Characteristics of the Two Gardens

Available Light & Shade: In the older garden, there is western and eastern exposure to sunlight, mature trees provide filtered sunlight. In the new garden- mature trees are located in islands providing less filtered shade

Moisture: On both properties rain is the prime source of water. During drought water is imported by truck or pumped from creek. An old well has been discovered on the property. This allows pails of water to be carried to plants, there is anticipation of a future pumping system.

Soil: sandy loam

Plan: excellent locations, zone & conditions for rhododendron culture

Tom's "old" garden with lots of shade

Rachele's garden, pockets of mature trees

Photos by Tom Laviolette

Sandy loam provides excellent drainage

Strategies for Success in the Two Gardens:

- A**ssess the existing garden & create a plan for the future.**

Mature Garden: A good foundation in garden design featured plenty of filtered sunlight and windbreak created by the Norway spruce (Picea abies) & Northern White Cedar (Thuja occidentalis) . The setting is optimal for the creation of beds for rhododendrons and companion plantings.
New Garden: Three acres had islands of small beds which needed a larger canopy. In order to augment existing trees (pines, hickories, eastern red cedars), pines, dogwoods, larches (larix) were planted.

- **Amend the soil.**

Loam is amended by organics, red / black oak leaves (already on the properties as well imported from neighbouring properties) and, needles dropped by existing trees. Material of 30-40 cm deep is laid on the existing turf. Good hydration encourages the quick breakdown of the leaves. The newer garden had chunky peat moss added in rhododendron locations. The healthy soil base does not require any further addition of chemical fertilizers. Every year beds are augmented with a new layer of organics(oak leaves).

- **Create a design that respects the natural inclinations of plants growing on the properties.**

Marsh marigolds (Caltha palustris), Yellow arch angel (Lamiastrum), May apples (Podophyllum), pickerel plant a water plant (Pontederia cordota) self-seed, or spread by underground runners and form the ground canopy. Rhododendrons planted on a slope can give optimal visual impact.

- **Unify the design with the existing structure.**

All new plantings are matched to the brick colour of the house (burnt orange, red, scattering of brown).
Many plantings have a four season appeal.
All plantings contrast each other in colour, texture, height and shape.
Plantings exhibit varying levels of canopies as well as varying tree maturities to ensure continuity.

- Corral invasive groundcover (e.g. vinca) into islands.

- Rhododendron plantings require no scientific formula – be aware of colour & height but feel free to intermix for optimal effect.

- **B**elong to a Rhododendron Society, an efficient avenue for acquiring inexpensive rhododendrons as well as sage advice from the experts. Be open to donations from friends, and, networking good deals.

Strategies for Dealing with Challenges:

- **Disease & death:** - be willing to cut back & get rid of trees (ash & poplar) to make room for other growth.
- **Unsightly scenes: -** hide by planting rhododendrons etc. in front (if you can provide enough water elepidotes can survive the drying conditions of nearby spruce).
- **Saw fly damage on azaleas:** - cut down to 15 inches from the ground, plants survive quite well
- **Pot-bound rhododendrons:** - reconfigure roots gently to ensure least trauma to the plant.
- **Good grass seed to cover large areas of dry earth:** - Queen Victoria Park grass seed (Niagara Fruit & Vegetable Growers, 1579 Four Mile Creek Rd., Virgil)
- **Clay soils**- raised beds allow good drainage and lots of organic matter for rhododendrons.
- **Deadheading rhodies:** – two Schools of Thought - *Old School* - yes for aesthetics, more vigour for bud development vs. *New School* - not necessary because new budding is not hindered by dying blooms and possibility of disease spread is minimized by not handling the buds from bush to bush.
- **Accept:** - disease and challenges do exist in nature: e.g. ips beetle (pines), borer (ashes), moles, raccoons, skunks, possums, rabbits, coyotes. Do the best of one's ability to control but do not sweat it.

Rhododendron Cultivars & Numbers Planted, Spring 2016.

5	Azalea Deciduous luteum GOLDEN COMET	3	KALINKA (Elepidote)
2	Azalea Deciduous WESTON`S LEMON DROP	5	KARIN SELEGER (Lep)
		3	LEE`S DARK PURPLE (Elepidote)
5	Azalea Evergreen KAREN	2	MIDNIGHT RUBY (Lepidote)
5	AGLO (Lepidote)	3	PATTY BEE (Lepidote)
3	BLUE PETER (Elepidote)	5	PEARCE`S AMERICAN BEAUTY (Elepidote)
5	CAT. BOURSAULT (Elepidote)	2	PERCY WISEMAN (Yak.) (Elepidote)
5	CAT. GRANDIFLORUM (Elepidote)	3	PURPUREUM ELEGANS (Elepidote)
5	CHECKMATE (Lepidote)	3	RIMINI (Elepidote)
4	CORNELL PINK (Lepidote)	3	SUGAR PUFF (Elepidote)
3	CUNNINGHAM`S WHITE (Elepidote	3	TAPESTRY (Elepidote)
5	EDITH BOSLEY (Elepidote	2	Fothergilla major MOUNT AIRY
3	FANTASTICA (Yak.) (Elepidote)	2	Azalea Deciduous WESTON`S INNOCENC
3	HANDY MAN PURPLE (Elepidote)	4	AzaleaDeciduous WESTON`S POPSICLE
3	INGRID MEHLQUIST (Yak) (Elepidote)		

The following cultivars existed before the 2016 rebuilding:– R. Boule de Neige, R. Gloxineum (prone to die in extreme cold temp), R. elegans, R. American Beauty, R. Rosebud, R. Lady of June, R. Budless wonder (nicknamed because it finally bloomed after 15 years – perhaps a good plan is to wait it out for any non-bloomer or believer)

Tom recommends these plants that are matched to his design plan.

Spring Front Yard: Dogwoods - white Pacific dogwood (Cornus nuttallii), White Cherokee Princess dogwood Cornus florida, (Hamamelis X intermediate), Azalea- Golden Light/ Stewarstoniam / Helen Curtis, Euphorbia Fire Glow , Magnolia Virginiana 'Satellite', Camassia leichtlinii), daisy-like Inula recemosa 'Sonnenspeer', spike winter hazel (Corylopsis spicata), snowy wood rush (Luzula nivea), Zabel's cherry laurel (Prunus laurocerasus zebelianum), bulb-foxtail lily, smoke bush (Cotinus), horizonatally branched Viburnum Plicatum var. tomentosum, Tulipa 'Day Dream'