



# "Niagara Rhodo"



Newsletter of the Niagara Chapter,  
Rhododendron Society of Canada,  
District 12, American Rhododendron Society  
February 4, 2018

**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'

## Content

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2. Chapter Program 2 P.M. Sunday, February 4, 2018.
3. Meeting Robbie Hart.
4. What Robbie Hart does in his research?
5. Impact of weather on rhododendron hardiness.

## 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*



## 2018 Program Meetings & Plant Sale



**Sunday, February 4, 2018. 2 P.M. Dr. Robbie Hart. Assistant Curator, High Elevation Ethnobotany Missouri Botanical Garden. *Climate driven change in Himalayan Rhododendron: Insights from History, ecology and traditional knowledge.***



**Sunday, March 4, 2018. 2 P.M. Tom Laviolette. Director, (retired) Niagara Parks Botanical Gardens, Niagara Parks Landscape Design, School of Horticulture, Butterfly Conservatory. *Plants and animals of the land and sea of Haida Gwaii: Haida culture and their Natural Environment.***



**Sunday, April 8, 2018. 2 P.M. Kevin Kavanagh & Nick Yarmoshuk. *What's in the Plant Sale? Describe for each cultivar: its strengths, weaknesses & appropriate growing conditions.***

**Saturday, April 28, 2018. Annual General Plant Sale. 9 A.M. Implement shed. Vineland Research & Innovation Centre. Victoria Ave. Vineland Station, ON**

## Sunday February 4, 2018. Ecologist, Dr. Robbie Hart

by Nick Yarmoshuk

Late in July 2018 Wanda and I had the good fortune to be informed of a unique talk to be given by a then unknown, to us, ecologist Dr. Robbie Hart. What attracted us was the realization that here was a scientist taking a unique multidisciplinary approach to study climate change, in the face of potential great challenges in ability to obtain valid and reliable data. He was reported to be examining samples



Hart collecting a tree-ring sample on Yulong Mountain

of plant tissues in storage for many decades, reading historical records of indigenous peoples' experiences with plants, discussing elders' current and past experiences with these plants, and observing plants' current performances at various elevations above sea level, and under a wide range of conditions. Furthermore, the plants he focused on were rhododendron. To learn a little about such research, we thought, would be interesting and thought it would be worth a trip to Holden Arboretum to meet this person.

Dr. Hart's talk was all we thought it would be. His presentation to a group of young graduate students was a pleasant mix of easily understood descriptive material with a good dose of analytic technique that proved to be more than my personal experience with analytic statistics could deal with. I decided immediately that Dr. Hart should be invited to share his ideas and experiences with our colleagues in Niagara's Rhodo Chapter. Of course I was delighted when he accepted the invitation

even though I had, nervously, asked him to tone down his statistical analytic techniques for that talk and to deal more with technique, observations, environment and conclusions .

Dr. Hart has recently returned from field work in China. We look forward to hearing of his adventures in research involving rhododendrons, the people who live among the rhododendrons and how climate affects both plants and the people.

To help our members and their friends to know what to expect of Dr. Hart talk on February 4, I came across an interesting Newspaper story from China that reported an interview with him. Here are some excerpts from that article.

**Ecologist Robbie Hart** By [Patrick Scally](#) in [Features](#) on October 9, 2012

Edited from <https://www.gokunming.com/en/blog/item/2816/interview-ecologist-robbie-hart>

“China Daily recently compared photos of Jade Dragon Snow Mountain [ Yulong Xueshan (玉龙雪山)] that show its once mighty glaciers are disappearing rapidly [See page 4.]. Although this is not particularly dramatic, it is a stark reminder that natural beauty, even on mountaintops, is not permanent.

Located in Yunnan province, this worldwide tourist spot is famed for the snow-capped glacier that has dazzled tourists and photographers for years. But global warming is changing this once picture perfect site as the southernmost glacier in the Northern Hemisphere is melting away.

Disappearing glaciers are more than just the loss of a good photo opportunity. When temperatures change and water becomes more scarce, plants and animals are affected. Eventually the effects on an area's flora and fauna impact people as well.

In an effort to better understand those changes, Robbie Hart has been conducting field research on the rhododendron populations of Yulong Mountain outside of Lijiang. He has been observing the plants and is comparing his findings with those of other, older botanists — particularly Dr. Joseph Rock, George Forrest and Baron Heinrich Handel Mazzetti”.

At the time of this interview in 2009, Robbie Hart was a graduate student collecting data for his PhD dissertation to be presented to the faculty at University of Missouri. During the interview he reported, “I'm working very closely with Dr Xu Jianchu at the Center for Mountain Ecosystems Studies. He and Dr Sailesh Ranjitkar are doing similar monitoring projects and historical comparisons in the Gaoligong Mountains (高黎贡山) and Nepal.”

And, of course, the researchers and staff at the Lijiang Alpine Botanic Garden are good friends and their help has been indispensable in my work”. The field station in Lijiang is actually co-run by the Kunming Institute of Botany [KIB] and by the Royal Botanic Garden Edinburgh, which has had a relation with the area ever since Forrest began collecting here 100 years ago. During the interview he was asked a number of questions, answer to which, and more, will be revealed in his talk on Sunday, February 4.

**GK: Is there anything specific about rhododendrons that make them the focus of your work?**

**GK: Are you focusing on one specific geographic area or mountain, or checking on rhododendron populations in multiple places?**

**GK: What does your research indicate about climate change?**

**GK: What are some general conclusions you can draw from your research up to this point?**



The changing face of Jade Dragon Snow Mountain in Yunnan province can be seen in this combination photo. below.



## More on Impact of Weather on Rhododendron Survival

In the December issue of *Niagara Rhodo* we lamented the state of November weather particularly the dramatic temperature changes over a short period of time. We wrote . . . . ***“This mild fall pattern, resembling a cool bright summer, was lovely to experience but what was the impact on rhododendrons and azaleas? In our garden, next to the SCG&CC golf course, the weather allowed many trees and shrubs to remain deep green into mid-November. Schlippenbachi, other deciduous azaleas, the Mezitt lepidotes, the Girard evergreen azaleas, Rosebud, Cornus florida and Cornus kousa Chinensis, Scarlet Oak and Pin Oak, which usually provided a bright range of various red colours in October and early November, remained green until November 9, 2017. The following 2 nights, on thermometers at Vineland Station and in our Highland Avenue garden, on November 10 and 11, temperatures fell to lows of -6°C & -8°C respectively. Where leaves had been green the day before they were now a darkish grey.***

***The question arises, how will this experience impact the rhodos, azaleas and their companions in the spring to come? As leaves turn from green to many hues of red and yellow, various processes take place that prepare the deciduous tree or shrub for the coming winter, but also for initiating growth in the spring. Not only did we lose the beautifully coloured fall colours but our plants may not have experienced these benefits that ensure long term survival”.***

Endeavouring to learn more about this we searched some of the literature on this topic but failed in our search. Contact with knowledgeable folks in our network produced a reference to a PhD dissertation, **Genetic and physiological aspects of cold hardiness in *Rhododendron*. Anu Väinölä.** University of Helsinki, FINLAND, 2000.

The author produced a comprehensive literature search of research conducted on the impact of various environmental factors on hardiness of rhododendrons in the year following various environmental experiences. The author’s conclusions are reproduced below. A summary of this literature will be prepared over the next several months and published so that readers may, perhaps, be able to better cope with the new realities of weather instability.

**CONCLUSIONS: Genetic and physiological aspects of cold hardiness in *Rhododendron*,** by, Anu Väinölä. (NOTE: The Newsletter’s editor has added explanatory terms in parentheses)

In northern Europe’s cold winters, fluctuating temperatures, unstable snow cover, cool summers and short growing seasons with late and early frosts restrict the growing of *Rhododendron*. In addition, the long daylength in summer should be regarded as a restricting element. Attention should be paid to proper timing of cold acclimation when marketing *Rhododendron* across the Atlantic in spite of the fact that the winters can be equally cold on both sides of the ocean. Due to different latitudes the light climates of the corresponding growing zones in these two continents differ considerably. In addition, summer temperatures are usually higher and the growing season is longer in America than in northern Europe.

This study showed that **cold hardiness of *Rhododendron* is partly dependent on the growing season characteristics.** (Emphasis added) Both Long Day and high temperature interfered with the growth, and triggered the plants to continue growing beyond the typical one flush per summer. However, genotypes reacted differently to applied daylength and temperature treatments. Of the two

cultivars tested 'Helsinki University' benefited from a cool summer typical for Scandinavia, whereas the amount of photoperiod (day length) played a greater role than temperature in the cold acclimation of 'Pohjola's Daughter'. 'Helsinki University' plants were hardier than 'Pohjola's Daughter' when plants were grown at 15°C, but after the summer at 24°C the 'Pohjola's Daughter' plants proved superior.

In breeding *Rhododendron*, attention should be paid to growth rhythm and timing of cold acclimation at various latitudes. Day-neutral plants that make only one flush in moderate temperature regardless of photoperiod (daylength) would be best for northern areas. The cultivars **that are very hardy in northern areas should be tested also in milder or more southern locations.** (*Emphasis added*). A plant that is hardy in certain cold areas may get severe injuries in other areas even with milder winters, especially if the growth continues for a long time in late summer or fall. For only moderately hardy deciduous azaleas or other *Rhododendron* breeding for better mid-winter hardiness of flower buds can be effective and profitable. Flower buds of deciduous azaleas acclimated later and deacclimated earlier than the stems of the same plants.

Several ornamental characters of *Rhododendron* can be improved through polyploidy, but unfortunately polyploidization did not prove to be a useful breeding method for increasing, or maintaining cold hardiness. The leaves and florets of the induced tetraploids were less hardy than the diploids they were derived from, but no difference was found between the stems of the corresponding clones. However, even though the hardiness decreased, the timing of acclimation was not affected by doubling the chromosome number. Thus, the method could be used to enhance new ornamental characteristics in milder areas.

The present results indicate that rhododendron leaves can be scored as dead or alive on the basis of 50% browning or severe damage to the midrib and major veins. Furthermore, more accurate hardiness estimates were obtained using visual assessment of injury than using the quantitative methods EL [(electrolyte leakage (test))] and IS (impedance spectroscopy). The visual method benefited from the statistical analysis applied, since all data could be combined in logit analysis rather than analyzing each cultivar separately from each freezing test. IS (impedance spectroscopy) was an adequate method for studying frost hardiness of elepidote rhododendrons both after controlled freeze tests and without artificial freezing. However, the results from the lepidote clones were less consistent with those from visual assessment and the parameters of the unfrozen samples did not correlate with frost hardiness. Further research is needed to obtain better fit and more satisfactory interpretation of the lepidote data.

