



## Commentary on Conservation Ecology

People who are engaged in understanding and managing environmental resources live in a strange world, a sort of terra incognita, that exists between theory and practice. That is, we don't have sufficient theory to explain the unpredictable behavior of resource systems, but rather we struggle with partial, disciplinary-bound concepts and methods. We also struggle with limitations in data to sort among multiple hypotheses, each of which may have alternative policy implications. Nor do we have sufficient experience or ways of accelerating learning about the effects of policies in the real world. The paper by Carpenter, Brock, and Hanson (1999) sheds light in this strange world, because it advances both the theoretical underpinnings of resource policies and provides sound guidance on ways to structure more thoughtful practice, as described in the following sections.

The theoretical premises of most current resource management actions are explicit and partial or implicit and tacit. Partial theories are developed and maintained by disciplinary hubris and lead to a remarkable naivete. For instance, ecologists recognize the inherent complexity of nature and develop sophisticated models and understanding of ecosystems, but often have an oversimplified sense of political or social dimensions around resource issues. Witness the recent statements by nationally recognized U.S. scientists for an "independent review" of ongoing ecological restoration plans in the Everglades. Although narrowly correct (what scientist wouldn't want independent peer review?), they appear hopelessly naïve of the social, political, and power relationships in the region. That is, by continuing a discussion on the uncertainties of the ecology (which is unlikely to be resolved by blue ribbon panels, but rather by field tests), they are perpetuating a long-standing policy gridlock.

Moreover, such moves have a dismal history; over the past 20 years, few if any, technical committees or scientific review panels have made any difference in policy (Light et al. 1995). The paper by Carpenter et al. (1999) shows ways out of such traps by building a robust bridge among theories from three disciplines (ecology, economics, and cultural theory). In doing so, the authors go a long way in developing an integrative theory of change around two key concepts for dealing nonlinear dynamics in systems of people and nature.

The paper addresses two properties of complex resource systems: resilience and panarchy. Resilience in ecological systems is the amount of disturbance that a system can absorb without changing stability domains (Holling 1973). Figures in the paper by Carpenter et al. (1999) provide excellent depictions of the transitions between alternative stability domains in the lake system, and it demonstrates how resilience is a function of interactions between key "slow" variables (e.g., phosphorus in sediments) and fast variables (e.g., weather variation).

See "Concept of a Panarchy" on page 2



VANCOUVER  
Rhododendron  
SOCIETY

## NEWSLETTER

Editors: Todd and Shannon Major  
Email: [stmajor@shaw.ca](mailto:stmajor@shaw.ca)

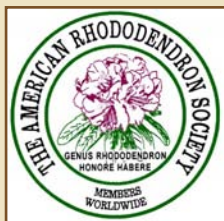
**January 2006**

### General Meeting:

Thursday Jan. 19, 7:30 p.m.  
Vandusen Botanical Garden

### Lecture Program:

**Annual General Meeting &  
Election of the Executive,  
Followed by Member Slides**



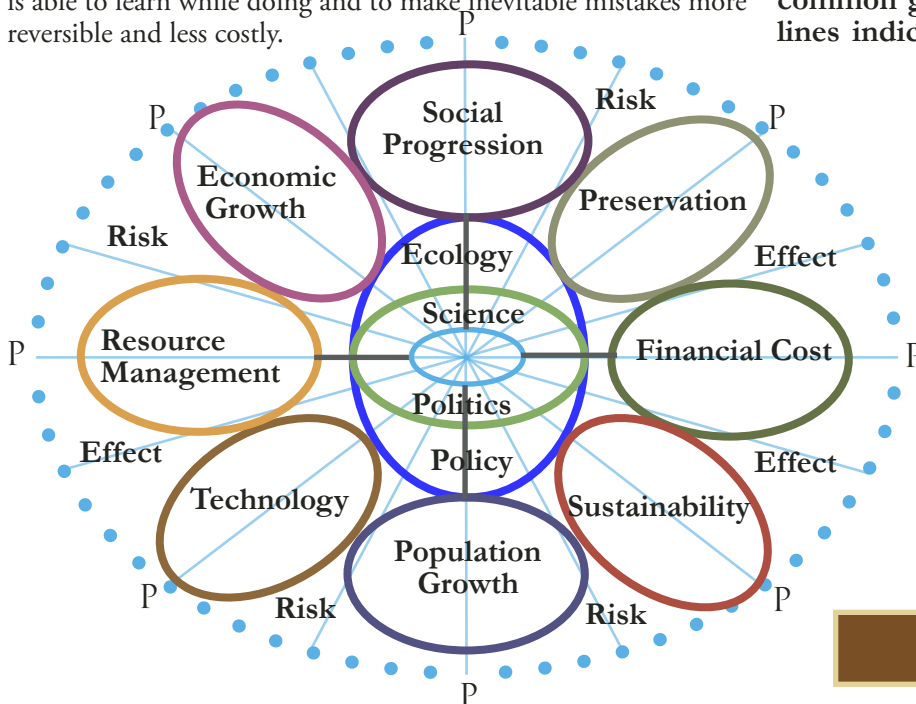
**Vancouver Chapter**

VRS Website: [www.rhodo.citymax.com](http://www.rhodo.citymax.com)

This interaction is also embedded in the **concept of a panarchy**, a construct that combines the adaptive cycle of Holling (1986) with cross-scale theory. Panarchy was developed as an alternative explanation to the top-down, slow-variable entrainment of hierarchy theory used by many ecologists (O'Neill et al. 1986). By incorporating these concepts into user-interactive models, Carpenter et al. (1999) are helping to chisel away some of the cross-scale and modeling obstacles outlined by Walters (1997) in his review of assessment and management.

A growing body of literature has documented a pattern of ecological surprise and policy response in managed resource systems. Walters (1986) first described a rhythm of crisis and opportunities in resource systems. The six ecological histories of regional-scale systems in Gunderson et al. (1995) all follow the model of a resource crisis followed by policy reformation and renewal. Similar patterns are described in traditional resource systems (Berkes and Folke 1998) and in large, North American bureaucratic management systems (Johnson et al. 1999). This pattern has also been described more generally in technological applications in social systems as a "bite-back" effect (Tenner 1997). It is also described as a pathology of resource management (Holling 1996), in which management actions are initially successful, leading to a myopia of research and management and eventual reduction in the resilience of the ecosystem.

The models of Carpenter et al. (1999) move beyond pattern recognition or qualitative descriptions into a framework that allows managers to more robustly understand the types of nonlinear dynamics of these systems. In most of the cases noted here (Gunderson et al. 1995, Johnson et al. 1999), the resource "surprise" is an indication of a shift in stability domain in the ecosystem. In the Carpenter example, it is the trophic state of the lake. The model framework allows thoughtful managers to assess alternatives in terms of recovery and restoration. In these cases, the options include: (1) restoring the system to a desirable domain, (2) allowing the system to return to a desirable domain by itself, or (3) adapting to the changed system because changes are irreversible. By probing the uncertainties of the resource system, a manager is able to learn while doing and to make inevitable mistakes more reversible and less costly.



The point here is that this framework changes the fundamental way in which most managers think about and attempt to understand the systems that they are charged with "managing." The paper contains a few lessons on sustainability and how it might be achieved. It is clear that sustainability is not a product but a process. It is also clear that the process of seeking sustainability requires focusing on ecosystem processes of resilience, renewal, and adaptive capacity. Those processes are constantly changing and, hence, must be constantly probed. It is also clear that we must seek more integrative approaches, because focusing on one scale and narrow goal-seeking (such as optimizing economic activities) are likely to be maladaptive. Or in the worst case, such myopic practices lead to a loss of resilience so that actions are irreversible and options dwindle. Success and failures of resource policies are not revealed in journals such as this one, but rather by putting those policies at risk in the real world. The simplified models by Carpenter et al. (1999) help move out of a pathologic process of seeking a "best" management practice to implement, with subsequent larger and more unmanageable crises, to a process that allows asking better questions to pose and test in the real world. Although this message is not new, this paper illuminates new paths in theory and practice to pursue on the quest called sustainability.

By Lance Gunderson, Dept. of Environmental Studies, Emory University, Atlanta, GA 30322, Phone: 404-727-2429 Fax: 404-727-4448 Email: lgunder@emory.edu . Based on a paper by S. R. Carpenter, W. A. Brock, and P. Hanson. *Conservation Ecology* 3(2): 7. Visit: [www.consecol.org/vol3/iss2/art7/](http://www.consecol.org/vol3/iss2/art7/) Copyright The Resilience Alliance January 2000.

**Diagram below left: The Philosophic Ecology Model.** The model does not have a top or bottom. Hierarchy is relative to the center circle of the drawing. Where circles touch there is communication and interaction. Circles that are across from each other or those circles that do not touch, have opposing philosophies and may be in conflict. Circles that are beside each other share common goals and problems. The innermost straight lines indicate the efforts of people to coordinate and direct development of conceptual understanding of the ecology and policy needs which leads to an action plan framework. Words outside of circle are unknowns and potential problems. The innermost oval (blue for micro-decisions) and the outermost oval (blue dotted for macro-decisions) represent the elements of a comprehensive philosophical belief system (P) that should be the baseline test (radiating blue lines) for all management decisions made for the earth's natural ecological systems. Such a philosophy is currently missing from modern ecological policy and resource management decisions. Diagrammatic visual model conceptualized by T. A. Roja, 2004.

## Einstein Year Award 1st Prize Surface Tension by Robert Anderson



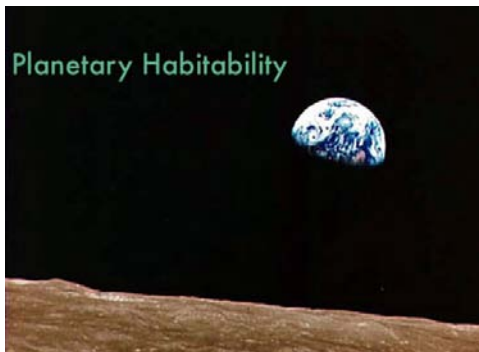
The surface tension of water can support even a metal paperclip. By photographing it using a grill in front of the light source, the deformation of the water caused by the clip's weight can be seen. This bending of light is

similar to the bending of light by strong gravitational fields, as predicted by Einstein's theories. Surface tension is due to an attraction between the molecules in water, which cause its surface to act in an elastic manner. 35mm SLR with tilt and shift lens, f22. Enhanced using PhotoDraw.

## Education: Planetary Habitability, With Dr. Laura Danly, Senior Fellow, University of Denver, ldanly@du.edu

### Course: The Force of Humans

The winter term explores the relationship between the evolution of the Earth and the evolution of life, with an emphasis on how humans have affected the course of Earth's natural history. Two eight-hour intensive seminars focus on the "carrying capacity" of the Earth (that is, the capacity for the Earth's resources to support the metabolic and other needs of human civilization), comparing demand and sources of vital items like water, energy, and food. Students quickly learn that the greatest source of uncertainty in these analyses is the unknown impact of future technologies. The



class will select one emerging technology for more in-depth discussion, addressing the technological, political, economic, and ethical issues surrounding that technology. Students will prepare a weekend seminar, to be held in the spring term, on the future of the selected technology and how it will affect life here on Earth. This workshop could be coordinated with the Center for Public Policy & Contemporary Issues, the Working Group in Ethical Theory, the Working Group on the Social and Ethical Implications of Science, and/or other groups on campus that share similar interests. Students will prepare a web site, rich in bibliographic and resource materials, to document their work.

(Photo above of Earth from Apollo 8, by NASA)

### The Force of Humans, Workshop #3 (Date TBD):

A workshop on the carrying capacity of Earth. Faculty from across different disciplines will present seminar-style talks on the current state and future projections of energy, food, water, population, and waste management. Students will divide into groups for more in-depth exploration of each topic and work with the selected faculty to identify resources and synthesize the material. Students will be assigned the task of monitoring the news for current stories related to sustainability and development and post them to a web site (see [du.edu/~ldanly/litu/scinews.htm](http://du.edu/~ldanly/litu/scinews.htm) for an example). Students will also develop a web site on the carrying capacity of Earth, with an emphasis on bibliographic material and further resources and debate.

### Present the Website, Workshop #4 (Date TBD):

Students present their web site and the fruits of their research into global sustainability, Earth's carrying capacity, and topics from news headlines. Faculty from Workshop #3 and other faculty who might be involved in Spring Term will be invited to participate as audience members. Students and faculty select one emerging technology for more in-depth discussion, addressing the technological, political, economic, and ethical issues surrounding that technology. Students will begin planning for a weekend seminar, to be held in the spring term, on the future of the selected technology.

### Lost your way?

Photo right, picture of Earth from the Mars Spirit Rover, courtesy of NASA. Photo below right, picture of Earth located in the outer edge of our galaxy, called the Milky Way, about 28,000 light years from the galactic center. The Milky Way is one of billions of spiral galaxies in the universe. Age: About 4.5 Billion Years Old. Courtesy of NASA.

See more at [www.ecology.com](http://www.ecology.com)



## The VRS “Golden Anniversary Year”

How shall we commemorate and conclude our Golden Anniversary Year? How shall we start our next half-century? I am looking for ideas and suggestions! Here is a list of what has been done so far:

- Articles of a historic nature about the early years of the VRS have appeared in a “Golden Anniversary” feature in the *Indumentum*.
- A project to preserve the historic Ted & Mary Greig Walk (coordinated by Bill Herbst) is underway.
- Commemorative note cards, featuring rhododendron paintings by Mary Comber Miles are available for purchase.

In outline, our “Normal Year” runs from September to June, with a break in December. It usually consists of:

- A Speakers Programme of six lectures by horticulturists from Canada, the USA, and overseas.
- Monthly issues of the *Indumentum*.
- An Education Session (or Workshop or Demonstration) preceding each lecture.
- A Show & Sale fund raising event, in early May.
- A Conducted Walk in a public park (UBC, VanDusen, Stanley Park).
- Tours of members’ gardens.
- A Potluck Picnic in June.
- Membership renewals and recruitment (with benefits to members).

We should aim to do something special in our Golden Year! Would you be interested in helping in the creation of one or more of the following activities?

- “Reaching out” to youth groups (Scouts, Guides, etc).
- “Reaching out” to Seniors (e.g., giving talks).
- Establishing a supported VRS Speaker’s Bureau.
- Establishing a targeted “Rhodo 101” programme for beginners.
- Establishing a VRS Horticultural Scholarship.
- Holding a Gala Reception/Fundraising event (e.g., a combined reception, auction and raffle).

I would like to meet with small groups of interested members to discuss suggestions and ideas, probably at a coffee shop in your area.

Comments and suggestions will be welcomed and appreciated. Please call me at 604-921-7260, or email [lpeterso@sfu.ca](mailto:lpeterso@sfu.ca).

By Louis Peterson

## Species Study Days 2006

The Species Study Days (SSD) will be held again in 2006 for the 5th consecutive year at the Rhododendron Species and Botanical Garden in Federal Way, Washington on the following Saturdays:

- February 25th, March 25th, April 29th & May 13th.

The programme is personally directed by Steve Hootman, Co-Director at the garden and plant explorer, *extraordinaire*. The format will follow that of previous years but will introduce new material for the benefit of past participants. No prior knowledge of the subject is necessary as the course begins with the fundamentals and progresses in detail at each session.

The sessions begin promptly at 10:00 a.m. and end at approximately 4:00 p.m. The mornings are generally spent reviewing various topics of general botanical interest relative to the study of rhododendron species, followed by keying of plant material currently in bloom in the garden at that time. A short break is taken for lunch between 12:00-12:30 and the afternoon spent touring the RSBG garden and identifying and discussing the wonderful collection of rare and exotic plants.

The course fee is \$35.00 for each session ( x 4 ) and the entire proceeds are used to provide a stipend for instruction and a donation to the garden. A nominal sum of \$5.00 is charged for lunch for those wishing to participate.

In past years, participants from Vancouver Island have traveled to the mainland on Friday prior to the session and stayed with a host overnight, returning Saturday evening.

In previous years we have found it desirable to cross the border before 7:00 a.m. on the route to Federal Way in order to avoid a delay at the border and the early a.m. Seattle traffic. This has permitted a leisurely drive to Federal Way with arrival about 9:15 and time for breakfast at the location of choice but for most of us at the Country Buffet. Arrangements for car pooling will be made.

The facilities at the RSBG are limited and a maximum of 28-30 people can be accommodated.

In order to avoid disappointment, please confirm your interest and forward payment to the undersigned:  
Mike Bale, 33623 Wildwood Drive Abbotsford BC V2S 1S2 Ph.(604) 853-8839, Email: [lu\\_zhu@telus.net](mailto:lu_zhu@telus.net)

By Mike Bale

# NEWS AND NOTES

## 2006 Nominations of VRS Directors and Officers

According to the Constitution, the President, Vice-President, Secretary, Treasurer, Newsletter Editor, Membership Chair and Programme Chair shall be elected for one year terms. The duties of these Officers are specified in the Constitution. The Board of Directors shall consist of the above Officers, the immediate Past President, and three elected Directors who shall serve for three years each. For the AGM in January 2006, the slate of Nominations is as follows:

**President:**

Louis Peterson to stand for a second (final) term.

**Vice President:**

Lothar Mischke to stand for a second (final) term.

**Past President:**

Vacant (was Ron Knight)

**Secretary:**

Radojka Harris is nominated to replace Bill Spohn.

**Treasurer:**

Barbara Sherman

**Newsletter Editor:**

Todd and Shannon Major

**Membership Chair:**

Carole Conlin

**Programme Chair:**

Louis Peterson

**Director:**

Sean Rafferty is nominated to replace Bill Herbst

**Director:**

Iain Forsyth (until January 2008)

**Director:**

John Priestman (until January 2008)

## Vacancies

If there are vacancies on the Executive following the AGM, those vacancies may be filled by the Directors from among the qualified members of the Society, if they see fit to do so.

## Committees

The start of the new year is an opportune time to express our appreciation to the various committees that have contributed to VRS activities over the past season, and to consider how all of us can contribute in ways small or large to the season ahead. The executive always appreciates work done on behalf of the VRS by volunteer members. Volunteers are the life blood of this and many other organizations, bringing vibrancy and growth to our Society. The Executive must be supported by the membership through volunteerism. Please consider giving some of your time to help to grow our society.

## VRS Committees

**Webmaster:**

Bill Spohn has agreed to continue to fill the new position of Webmaster.

**The Programme Committee:**

Louis Peterson supported by Joe Ronsley.

**Refreshments:**

Jackie Clayton and Barbara Forsyth

**Growers' Liaison Committee:**

Bill Herbst has agreed to continue to serve and assist with the Show & Sale.

**The Greig Project Committee:**

Bill Herbst, Todd Major, Sue Klapwijk and Les Clay.

**Publicity Coordinator:**

Carole Conlin has agreed to fill this position until a permanent replacement can be secured.

**Garden Tours:**

Lothar Mischke will continue to head the committee.

**Show & Sale Committee:**

Consists of the entire Executive Board in sub-committee roles, together with many helpers from the membership at large.

**Library Committee:**

Jasbir Gill and Iain Forsyth, soon to be joined by Pamela Whitehead.

**Potluck Dinner Coordinator:**

Vern Finley continues to serve us very well and has done so for many years.

**Education Committee:**

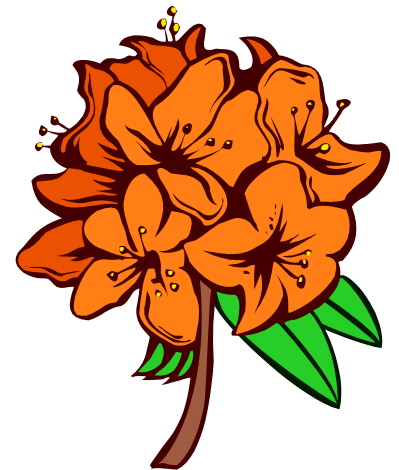
Volunteer coordinator needed.

**A new "Rhodo Rescue" Committee:**

Consists of Lothar Mischke, Sean Rafferty and Louis Peterson.

Your President is seeking volunteers for a "Reaching Out" committee to spearhead new activities. Many members bring raffle prizes, Jim Hall and others sell the raffle tickets, and Frank Dorsey, Douglas Justice and Charlie Sale do the Sterling Raffelmeister Duties but more help is needed. So please consider volunteering some time for the VRS.

By Louis K. Peterson



## Great Plans for VanDusen Botanical Gardens

An exciting, multi-million dollar rejuvenation is planned for the VanDusen Botanical Gardens. After 30 years as an important urban botanical garden, the VanDusen Botanical Garden Association (VBGA) and the Vancouver Parks Board (VPB) have undertaken the exciting task of revitalizing the Gardens, to become “a vibrant place of botany, horticulture and environmental learning”. Watch for more details in our next *Indumentum* about the presentation to be given at our February meeting. Mary Butterfield, Capital Campaign Director, Jill Cherry, Director of the Gardens, and Dick Mackenzie will tell us about “The Gardens Renaissance Project and the History of the Gardens”. In the meantime you may wish to view the website [www.vandusen.org](http://www.vandusen.org) and click on Capital Project.



*Talauma hodgsonii*: Family-Magnoliaceae; evergreen to 50 feet, tender in Vancouver, Himalayas.

## Membership

Welcome to new Members: Elizabeth Topham-Larsen, Bruce Larsen, Corrine Mounce, Byron Henry, Paul Kristof, Sherrin Wasson, John Rak and Mun Kwan Tham.

Guests are always welcome at our meetings. Check the website at [www.rhodo.citymax.com](http://www.rhodo.citymax.com) for a list of speakers.

Membership Renewals are still being accepted. You can see me at the Membership Table on January 19th or mail me your renewal. Membership Cards have been mailed to those who have renewed.

Membership rates:

- Vancouver Rhododendron Members \$25.00 per year (borrow ARS journals from the VRS library)
- ARS/VRS Members \$50.00 per year (includes 4 ARS journals a year)
- Associate Members - \$10.00 per year – must be a member of another ARS Chapter to be eligible for Associate membership.

If you change your name, address, email or telephone, please let me know so our records can be updated. If you have any questions about membership, please contact me.

Join Us As We Celebrate 50 Years! (June 1955 to June 2006) Thank you and all the very best in 2006! See you at the general meetings!

Carole Conlin  
VRS Membership Chair  
PO Box 91, Lions Bay, BC V0N 2E0  
Telephone: 604- 921-7260  
Email: [cconlin@alumni.sfu.ca](mailto:cconlin@alumni.sfu.ca)

## Do You Have an Opinion? Who Doesn't?

## Maybe a Picture of Interest? Or even something boring!

## Share Some News or an Announcement?

Letters to the *Indumentum* editor, news, pictures and anything rhodo or otherwise can be sent to Todd or Shannon Major at [stmajor@shaw.ca](mailto:stmajor@shaw.ca).

Please send all letters in MS Word, Notepad or Wordpad. We need pictures too! The larger the picture file size the better the result on screen and in print. If you don't send something, then you will have to live with what I like to print, so get involved!

Todd Major



## Members Asked the Indumentum: How can I move a very large rhododendron?

Large rhododendrons have shallow, fibrous roots and are quite happy to be moved. The best time for transplanting is in late fall, which gives the plant time to establish new roots before the hot dry summer weather arrives.

I have moved very large rhododendrons on two different occasions. The first time was ten years ago when I decided to relocate a three metre tall R. Walloper from North Vancouver to Pender Harbour. There was a major problem however; my van could only accommodate a one metre tall plant.

The solution was drastic pruning. A pair of loppers and fifteen minutes of work reduced the once magnificent rhododendron to a stick with two short side branches and a few leaves. I then dug up a root-ball about one metre in diameter, pushed it onto its side, and placed a wheelbarrow, also turned on its side, against the bottom of the root-ball. (Other gardeners have told me that a furniture-moving dolly works even better for this task.) It was easy after that to push the rhododendron upright with the wheelbarrow, move both to the tail-gate of the van, and slide the plant inside.

When the R. Walloper arrived at Pender Harbour, I wheelbarrowed it to a rocky hillside under some Douglas Fir trees. Since there was only a thin layer of moss over the bedrock, I prepared a planting mix of equal parts of mulch, unscreened topsoil, and peat moss. Amazingly, the rhododendron flowered again after two years, grew over the next decade to a height of three metres, and became even bushier than it had been in North Vancouver (Figure 1).



By that time, however, I had other Walloper rhododendrons in my garden and decided to give the plant from North Vancouver to a friend. He wanted the rhododendron to be moved, without any reduction in height, to a spot in his garden where it would block out an unsightly view in a neighbour's yard. Since the R. Walloper was planted in a location that was inaccessible to a backhoe, my friend chose to hire three professional gardeners to assist him with the move. That very wise decision allowed me to escape any heavy lifting and to take photographs of the entire operation.

The gardeners each arrived with a shiny new fiberglass-handled shovel. (I've found that a flat spade, sharpened on a grinding wheel, is excellent for digging up rhododendrons.) They first dug a trench about 1.5 metres in diameter around the R. Walloper.



Next they poked underneath the plant as far as possible to loosen a root-ball approximately twenty centimeters deep (Figure 2). Then they pushed the rhododendron onto its side to release all roots from cracks in the bedrock below (Figure 3).



See "The Next Step" on page 8



## Back to Basics

The next step involved pulling a large plastic tarp under the root-ball as it was rocked from one side to the other (Figure 4). A new challenge now presented itself: how to drag the massive rhododendron over a perennial border without ruining the tiny plants in its path. The solution was to create a “railway track” of wooden studs and slide the R. Walloper along it, above the perennials (Figure 5). After that, it was a simple matter



to repeatedly move studs from behind the rhododendron to new positions in the front and drag the tarp and plant across a lawn to the driveway (Figure 6). Once the rhododendron arrived behind the gardeners’ truck, wooden studs were used to create a ramp, and the plant was pushed up into position on the flat-bed. From the time the gardeners arrived on site, the whole process took only fifty minutes. No damage was done to the garden border, to the lawn, or to anyone’s back. And now, with R. Walloper gone, I have space to plant an even more spectacular tall-growing rhododendron!



Article and Photos by Ron Knight

## Basic Transplanting Rules

To assure the best results when transplanting follow these simple rules:

- Before transplanting, if the target plant’s root ball is dry, water in advance of beginning the work, this allows the plant to retain leaf turgidity during the move.
- Use rope or string to tie up lower branching to allow access to the root ball for digging.
- Do not prune branching when transplanting. There is a known correlation between plant hormones produced at the branch tip and corresponding root growth. If you prune you will remove this vital relationship.
- Dig the largest root ball possible (depending on equipment or manpower), proportionate to the size of plant. A larger root ball facilitates quick regrowth after transplanting, allowing the plant more root tissue to carry out basic metabolic processes and recovery. There is a limit to this rule, too big and the ball will fall apart. Root balls damage easily, be careful.
- Do not transplant during the heat of summer or during hard frosts, to avoid drought stress.
- Use burlap to bag the root ball, this helps to keep the root ball from falling apart during transport. Burlap is not always needed, many plants including rhodos will move without burlap, if they have a fibrous root system.
- Cut larger roots cleanly with a hand pruner to facilitate quick healing.
- Plant the transplant 1-2 inches higher than the surrounding grade in its new home, to allow settling. Mulch down from the top of the rootball to the existing grade.
- Always mulch the finished transplant, to protect the soil and provide a matrix for food producing organisms.
- Water in the transplant once it is in the final position, to settle air out of the soil and to provide water for metabolic processes.
- Do not apply fertilizer, bone meal or other counterproductive additives during transplanting, such additives force soft new growth which cannot be supported by the reduced root system. Instead, add compost or manure to the planting hole and mulch.

By Todd Major

