

# PRSSS

**PACIFIC REGIONAL SOCIETY OF SOIL SCIENCE**

**C/O FACULTY OF AGRICULTURAL SCIENCES  
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## *Message From the President*

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Spring is quickly approaching and it is time for soil scientists to start preparing for a new season. Before we all become busy with the upcoming season, plan to attend the next PRSSS workshop on March 27, 1999!! The workshop is entitled “**Organic Residuals and Resource Management**” and will be held at UBC in the MacMillan building (for more details, check the insert).

The Faculty of Agricultural Sciences has already undergone spring “cleaning” and reorganization. The Biometeorology group, led by Dr. Andy Black, is finally coming back to the MacMillan building to rejoin the soils people, while Dr. Art Bomke is moving to room 185 to join the agroecology group. To find out more about these changes within the Faculty read Dean Moura Quayle’s article on page 5.

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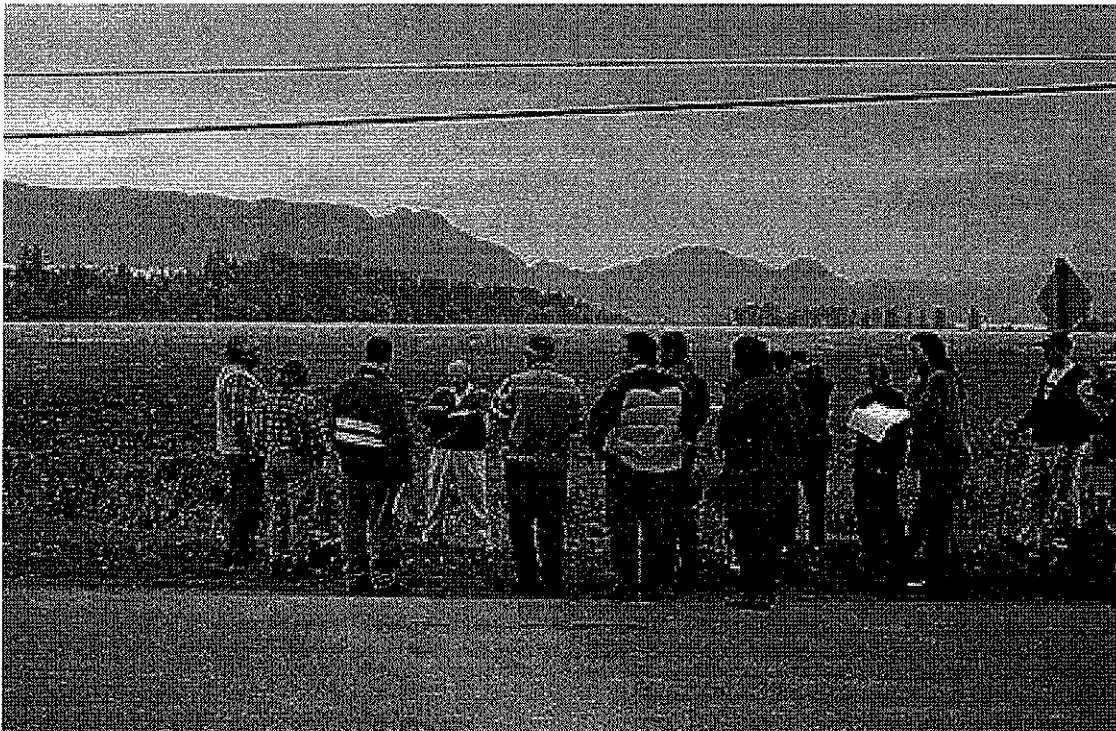
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*Message from the President continued...*

The PRSSS executive did not spend the whole winter hibernating; we hosted a field trip with Dr. Les Lavkulich and about 20 die-hard soil lovers to rediscover the wonderful world of pedology and soil classification. Despite some technical difficulties that we encountered on the tour, it was very engaging. It was quite inspiring to see soil scientists of various generations get excited looking down a freshly dug hole in the ground. One can encounter this phenomenon only among soil scientists. I hope that the upcoming workshop will be as interesting as the past field trip. I look forward to seeing many of you on March 27, 1999.

*Dr. Maja Krzic  
President*

**PRSSS Members during the "Expand Your Horizons" field trip in October 1998  
Photo credit: Dr. Klaas Broersma, Agriculture Canada**





**The University  
of British  
Columbia**

# **Integrated Watershed Management**

**A graduate level course**

**Instructional Team:** H. Schreier, K. Hall, S. Brown, P. Zandbergen, W. Tamagi, and L.M. Lavkulich

There are few comprehensive graduate programs in North American Universities that focus on watershed management and many of the professionals trained in engineering and planning are confronted with the need to upgrade their knowledge and skills to address such issues as stormwater detention, filtering strip development, removal of contaminants before they enter streams, rehabilitation of streams and buffer corridors, creating flood water storage etc. Many professionals are unable to participate in a full time graduate program, hence the idea was born to create a professional course at the graduate level using a distributed learning module in Hypermedia in conjunction with a CD-ROM connected to an Internet Bulletin Board and email.

Over the past 4 years we have used a team approach to teach watershed management, which includes experts in hydrology, water chemistry, biology, land use and soil science, social science, policy, legal experts, and resource economists. We also relied heavily on Geographic Information Systems (GIS) to provide the integrating platform. Most participants found it a useful tool to quantify and portray the issues in a spatially referenced manner. However, with increasing climatic variability and land use intensification, watershed problems become more widespread and with it there is a need to reach a wider audience. The need is particularly important for practicing engineers, planners and land use managers since flooding and water quality deterioration from non-point sources are issues that are increasing rapidly and are preoccupying the public, managers and decision makers.

The modules in the CD-ROM cover most of the quantitative techniques used in assessing watersheds. This includes stream, land and human, and integrated analysis methods, GIS, EIA and risk assessment. The CD-ROM contains over 600 computer frames, 800 graphics and images and case studies. The entire program is interactive and includes case studies featuring GIS based watershed evaluations in: urban stormwater management, urban/rural fringe issues related to septic systems and hobby farms, agricultural non-point sources of pollution, and a community based approach to rehabilitating a watershed. The CD contains 400 searchable references and web sites can be accessed from the CD through to use of the Internet bulletin board. The bulletin board is active throughout the course and relevant website connections are provided on a weekly bases as the students work through the hypermedia material. Assignments, discussion issues, and related Internet sites are posted on a regular basis and the students can now network and have access to the newest information on watershed management. The next course starts on **March 15, 1999**.

For more information about the course see <http://www.ire.ubc.ca>. The Internet Class-Room can be accessed via <http://rmes.cstudies.ubc.ca>.

✻ **Congratulations to the Following Soil Science Graduates** ✻

**Natalie (Tasha) Tashe, M.Sc.** December 1998. The Impact of Vine Maple on the Biogeochemical Nutrient Cycle of Conifer-Dominated Coastal Forests in Southwestern British Columbia. Supervisor: Dr. Margaret Schmidt (SFU).

**Buffy (Beth) Baumbrough, Ph.D.** November 1998. Soil collembola under different conifer species on Southern Vancouver Island, British Columbia. Supervisor: Dr. S.M. Berch.

**Fidel Fogarty, M.Sc.** November 1998. The North American pine mushroom *Tricholoma Magnivelare* (Peck) Redhead: in vitro mycelial culture, ectomycorrhizal synthesis trials and preliminary shiro analysis. Supervisor: Dr. S.M. Berch.

**Kayuum Mansoor, M.Sc.** November 1998. Evaluation of the WEPP Hillslope Profile Model for Estimating Runoff and Soil Loss for Two Sites in Western Canada. Supervisor: Dr. M.D. Novak.

**Jude Odhiambo, Ph.D.** November 1998. Effect of Cereal/Grass and Legume Cover Crop Monocultures and Mixtures on the Performance of Fall Planted Cover Crops, Soil Mineral Nitrogen and Short-Term Nitrogen Availability. Supervisor: Dr. A.A. Bomke.

**Lawrence Redfern, M.Sc.** November 1998. Root disease and soil compaction: an overview. (Essay). Supervisor: Dr. T.M. Ballard.

**Justin Straker, M.Sc.** November 1998. Soil Development and Forest Productivity on Naturally Regenerating Landslides on Vancouver Island. Supervisor: Dr. T.M. Ballard.

**Paul Yang, Ph.D.** November 1998. Carbon Dioxide Flux Within and Above a Boreal Aspen Forest. Supervisor: Dr. T.A. Black.

**Mussolini Kithome, Ph.D.** May 1998. Reducing Nitrogen Losses During Composting of Poultry Manure Using the Natural Zeolite Clinoptilolite. Supervisors: Dr. A.A. Bomke and Dr. J. Paul.

**Martin Hilmer, M.Sc.** May 1998. A Strategy for the Integration of Small Farms and Wildlife Habitats in the Greater Vancouver Regional District. Supervisors: Dr. A.A. Bomke and Dr. L.M. Lavkulich.

**Leonard Nafuma, Ph.D.** May 1998. Short-Term Effects of Gramineous Cover Crops on Autumn Soil Mineral Nitrogen Cycling in Western Lower Fraser Valley Soils. Supervisor: Dr. A.A. Bomke.

### TRACKING THE TRANSFORMATION...

**UBC Faculty of Agricultural Sciences: programs for ecosystem, community and human health**

*Moura Quayle, FCSLA, P.Ag.*

*Dean February 19, 1999*

Making change under pressure. The transformation of our Faculty has been hastened by my own current anxiety to ensure that our students are provided with the best learning experiences for them to become change agents. We desperately need people with a broad understanding of all the components of a sustainable society. But, this process of change causes us to question our values and beliefs. We find ourselves questioning almost everything and experiencing frustration in defining or retaining a fundamental sense of who we are. This makes the change process both challenging and exciting for students, faculty, staff and professionals alike.

#### *☞ Why Change?*

Someone said to me when I first started as Dean, WHY do we have to change as a Faculty? What's wrong with us? As a founding Faculty of the University of British Columbia, the Faculty of Agricultural Sciences has a proud history on the UBC campus as the *friendly* Faculty, so-called because of size and emphasis on people and learning. My response? The bottom line is that our current mode of operations is not sustainable. Our current programs are too numerous, too small and not responsive to emerging student interests or career opportunities (i.e. enrolment has been on the decline). There is an increasing need for a global perspective in how we do business as a learning and research institution. The Faculty and its students are facing increasing competition. Due to many factors, we need to focus our energies and commitments in a way that does not compromise excellence. This focusing should be based on our comparative advantage.

One of our primary strengths as a Faculty is that we bring together a diversity of disciplines to address issues that confront society. Our commonality of values and philosophy allows us to work co-operatively. We are small. We focus on students. We have excellent teachers. We are hands-on and applied. We prepare graduates for a broad spectrum of future employment. We have strong interdisciplinary research links within and outside the Faculty.

It is based on these strengths, I argued, that we must begin to accelerate our change. We are small and light on our feet. We should be in experimentation mode during our transformation, taking the opportunity to help the University chart new paths in demonstrating values, re-defining work-places and making innovations in course content and delivery.

### *🔗 The Program Structure*

As a result of support from TREK 2000, the UBC Vision and our own continuing academic and strategic planning processes towards sustainability, we are committed to a draft working structure for our Programs in the Faculty. The **Food, Nutrition and Health Program** will offer a B.Sc. (Food, Nutrition & Health), offers undergraduate majors/emphases in Dietetics, Food Science, Nutritional Sciences and Food Marketing Management. Coordinator: Dr. Eunice Li-Chan. The **Agroecology Program** will offer a B.Sc. (Agroecology), offers undergraduate majors/emphases in Animal Studies, Agroecology, Horticulture, Resource Economics and Soils and Environment. Coordinator: Dr. Art Bomke. The **Global Resource Systems Program** will offer a Bachelor of Global Resource Systems, offers undergraduate students the ability to choose a region and a resource specialization with an emphasis on international experiences and perspectives. Coordinator: Dr. George Kennedy.

The area of **Community and Environment** also has excellent growth potential in the Faculty. The Home Economics program was recently reviewed and the Task Force Report suggests a revision of the program and a re-naming to a Bachelor of Human Ecology. The Faculty is currently considering a time-line for this change. For the year 2000 we are proposing an undergraduate degree in Environmental Design jointly with the School of Architecture in the Faculty of Applied Science. The existing graduate program in Landscape Architecture is also under this Community and Environment umbrella.

We are working on B.C.-wide curriculum development with several partners. For example, in the Horticulture area we are developing a "made in BC" horticulture program taking advantages of our Botanical Gardens and partnering with industry and other B.C. horticulture programs. In Aquaculture, we are exploring similar curriculum partnerships with Malaspina University College, the Oregon State system and ITESM University in Mexico.

### *🔗 Curriculum Challenge*

Meanwhile the curriculum is moving apace with our attempt to create a series of second year offerings (given that first year is essentially a basic science year) which will go to Senate for approval this spring and be implemented for September 1999. This curriculum re-working is being conducted on the basis of the direction that the whole university academic plan is taking – namely creating a much more student-centred learning experience. We are putting considerable energy into our first "hallmark" offering which all students in the Faculty will take. Land, Food & Community I, led by Art Bomke and Alejandro Rojas, will be a faculty-wide core course (6 credits) folding in concepts from the existing AGSC 200 (Stewardship of Managed Landscapes) and AGSC 210 (Food Production Systems), as well as ethics, critical thinking, creative thinking and professional communications. The famous and infamous third year field trip in the fall is being expanded to also offer a Vancouver Island field trip in the spring (year 2000). Look out Vancouver Island! We are currently investigating the best "time" for students to have the field trip experience.

### Soils and Environment Education at UBC

As we consider the continuum from land and its stewardship to food production to nutrition and then on to humans and their communities, the perspective of soils and environment is an underlying theme. As a result, we are committed in this Faculty to ensuring that all of our students have a basic understanding of soils and the relationship of soils to environmental health. The Soils group is appropriately located in the Agroecology program, providing, as they have historically done across the campus, soils and resource management education in majors such as Animal Studies and Horticulture. The new Faculty structure allows for the study of Soils and Environment under the Agroecology program at the undergraduate level. I believe that we will attract more undergraduates into this area as we link it more strongly through the study of Agroecology. I especially imagine a growth in our graduate program in Soils and Environment in cooperation with the Institute of Resources and Environment. I also see us developing much stronger links with the Bachelor of Environmental Design and the Master of Landscape Architecture Programs in the Faculty, where students will have access to a variety of course offerings to piece together a program that suits them for their futures. We will continue to honour our responsibility for soils education across the campus in geography and in forestry, and hopefully build some new partnerships with other units across campus in areas such as soil chemistry.

We have tried to design a flexible structure for our academic programs to allow them to grow and change. I am heartened by the energy that the faculty in Soils and Environment have committed to this "not easy" process of change as they all re-visit their courses and re-think their teaching and delivery modes. We look forward to a much more integrated education for all our students in the Faculty, with a basic understanding of soils being a learning outcome that is emphasized.

As David Orr writes:

"...a great deal of what passes for knowledge is little more than abstraction piled on top of abstraction, disconnected from tangible experience, real problems, and the places where we live and work. In this sense it is utopian, which literally means "nowhere"." (Orr, 1992, p. 126)

This transformation work is an attempt to get us somewhere.

Please send ideas, comments, and gripes to Moura at FAX: 604-822-6394 or e-mail: [mquayle@interchange.ubc.ca](mailto:mquayle@interchange.ubc.ca). Visit our WEB site at <http://www.interchg.ubc.ca/agsci>

## *Calendar of Upcoming Events*

- March 27, 1999.** The annual event and AGM organized by BC Chapter of the Soil and Water Conservation Society. MacMillan Building, room 154 at 3:30 pm, University of British Columbia, Vancouver, BC. The topic of the talk is "Hybrid poplar in agricultural management" and speaker is Cees van Oosten.
- March 27, 1999.** The PRSSS Annual General Meeting and workshop on "Organic Residuals and Resource Management". University of British Columbia, Vancouver, BC.
- April 19-22, 1999.** The 5th International Symposium - In Situ and On-Site Bioremediation. San Diego, California. Contact: The conference coordinator, phone 800-783-6338, fax (614) 488-5747, or e\_mail conferencegroup@compuserve.com.
- May 23-28, 1999.** The 10th International Soil Conservation Organization Conference - Sustaining the Global Farm: Local Action for Land Stewardship. West Lafayette, Indiana. Contact: ISCO99 conference organizers, phone (765) 494-8683 e\_mail: isco99@ecn.purdue.edu, web sites <http://www.soils.ecn.purdue.edu/~isco99> or <http://128.46.135.45/~isco99>.
- May 27-30, 1999.** The 10th International Conference of the Society for Human Ecology - Living with the land: interdisciplinary research for adaptive decision making. Montreal, Quebec. Contact: Thom, Meredith, phone (514) 398-4219, fax (514) 398-7437, or web site <http://felix.geog.mcgill.ca/SHE/>.
- June 10-12, 1999.** The 2nd Approximation Conference on Soil Resources: The Inventory, Analysis, and Interpretation for Use in the 21<sup>st</sup> Century. Minneapolis, Minnesota. Contact: Dr. Jay Bell, phone (612) 625-6703, fax (612) 624-4223, or web site <http://soil.resources.unm.edu/99conf>.
- August 8-10, 1999.** The 79th Annual Conference of the Agricultural Institute of Canada. AIC '99 Knowledge and Creativity - Key to Agriculture's Future. Charlottetown, Prince Edward Island. Contact: Kais Deelstra, phone (902) 368-4842, fax (902) 368-4857, e\_mail [kdeelstra@gov.pe.ca](mailto:kdeelstra@gov.pe.ca), or web site <http://www.upei.ca/~aic99>.
- August 8-11, 1999.** The annual Soil and Water Conservation Society conference. Biloxi, MS. Contact: Pat Mulligan, phone (515) 289-2331/ext. 17, e\_mail [patm@swcs.org](mailto:patm@swcs.org).
- September 19-23, 1999.** International Composting Symposium. Dartmouth/Halifax, Nova Scotia. Contact: Dr. P.R. Warman, phone (902) 893-9139, fax (902) 893-4523, or web site [www.vitapost.com/ics99.htm](http://www.vitapost.com/ics99.htm).
- October 31 - November 4, 1999.** Annual meeting of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America. Salt Lake City, Utah. Contact: ASA, CSSA, SSSA Headquarters Office, 677 South Segoe Road, Madison, WI 53711-1086, fax (608) 273-8089, or web site [www.soils.org](http://www.soils.org).
- July 10-14, 2000.** Symposium on the role of erosion and sediment in nutrient and contaminant transfer. International Association of Hydrological Sciences. University of Waterloo, Waterloo, Ontario. Web site [www.fes.uwaterloo.ca/Research/1AHS2000](http://www.fes.uwaterloo.ca/Research/1AHS2000).



**NEW METHODS REFERENCE for Soil Scientists incorporating Foliar Analyses into their work...**

**Handbook of Reference Methods for Plant Analysis.** January 1998. Edited by Yash P. Kalra. Soil and Plant Analysis Council, Inc. Athens, Georgia. Catalog No. SL1248. ISBN 1-57444-124-8.

This methods reference is an outstanding resource of plant analysis procedures, outlined in easy-to-follow steps and laboratory-ready for implementation. Plant laboratory preparation methods, such as dry ashing and acid and microwave digestion, are discussed in detail. Extraction techniques for analysis of readily soluble elements (petiole analysis) and quick test kits for field testing are also presented. This handbook consolidates proven, time-tested methods in one convenient source. Plant scientists in production agriculture, forestry, horticulture, environmental sciences and other related disciplines will find the handbook a standard laboratory reference. The council aims to promote uniform soil test and plant analysis methods, use, interpretation, and terminology as well as to stimulate research on the calibration and use of soil testing and plant analysis. This reference will help readers reach these important goals in their own research.

I have used methods in this book and it is a useful reference!

Sandra Traichel

Newsletter Editor (aka Soilcon Laboratories Lab Project Manager!)

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