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June 1993

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Annual membership fees
are \$5.00
Student annual
membership fees are
\$3.00

MESSAGE FROM THE PRESIDENT

Happy Tenth Birthday, PRSSS! Formed in 1983, the purpose of the Society, as stated in the constitution, is "to foster all educational, technical and scientific aspects of soil science by convening meetings and workshops, by distributing newsletters, establishing committees, and engaging in all necessary activities related to the advancement of soil science in .. British Columbia". Traditionally, we are based at UBC, and our activities include an evening session each fall, several newsletters per year and the BC Soil Science Workshop (recently co-hosted with the Soil and Water Conservation Society, BC Chapter, (SWCS)). In the past, most of our members have been former or present members of the UBC Department of Soil Science, but that has changed in recent years. We currently have more than 120 members, not only in BC and Alberta, but also in Ontario, Quebec and even 1 in India.

To help us launch our second decade, I am sending out a survey to all of our members. The survey includes questions on all of our activities, as well as on our fees, which have remained at \$5.00 (\$3.00 for students) for the past 10 years. Many of you are unable to attend the Annual General Meeting and we would like to hear your comments on our Society's activities. All our activities are organized by volunteers, and they have worked very hard to plan the workshop and to produce the newsletter. PLEASE take the time to fill it out, as it will help to establish our priorities for the future. I am sorry that the PRSSS cannot include return postage, but we operate on a tight budget. I look forward to your responses.

The topics for the fall evening session and the 1994 BC Soil Science Workshop have not yet been set. If you have any suggestions, please contact me at 822-4458/734-0072.

I am looking forward to the next 10 years of the PRSSS as being as successful as the first!

Barbara Cade-Menun
UBC

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PRSSS MEMBERSHIP SURVEY FORM

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**SYNOPSIS OF THE PRSSS
ANNUAL GENERAL MEETING
HELD ON FEBRUARY 18, 1993**

For those of you who were unable to attend this year's Annual General Meeting (AGM) - we missed you! However, the following should bring you up to date on the main areas of debate and decision-making within the PRSSS over the last 12 months.

Firstly, and possibly of greatest note, is the resolution of a proposal made at last year's AGM regarding the amalgamation of the PRSSS with the SWCS. After much discussion, both during and previous to the AGM, both memberships decided against amalgamation but did agree to work together on the annual workshop.

The Treasurer reported a healthy balance sheet:

Initial Balance (Jan. 1, 1992):	\$2735.83
Total Debit:	\$2085.00
Total Credit:	\$2425.00
Final Balance (Dec. 31, 1992):	\$3080.53

An additional \$1000 from Ron Bertrand is surplus money from prior workshops, and is to be used for future workshops.

It was noted that in 1989, prior to our taking over the BC Soil Science Workshop, our balance was \$700.00.

This increase in monies over the past 3 years is due to surplus money from the workshops we have hosted, and should be used only for future workshops. With such an increase in the Society's funds, many members wished to see a more detailed Treasurer's Report and the appointment of an auditor. Both proposals were agreed to and carried. It was also decided that 2 separate accounts would be opened, one for the workshop and the other for membership/Society funds.

Finally there was the customary election of officers. The new officers are:

President:	Barbara Cade-Menun
Vice-President:	Rhian Evans
Treasurer:	Martin Carver
Secretary:	Trevor Murrie

Barb Cade-Menun is a PhD candidate in the Soil Science Department and is working on forms of soil phosphorus in podzols in North Vancouver Island. Rhian Evans, also in the Soils Department, is an MSc. candidate examining the forms and adsorption of trace metals from the application of sewage sludge to forest soils. Martin Carver, a PhD candidate in the Resource Management Science Program at UBC, is investigating soil erosion and sediment transport in the middle mountains of Nepal. Trevor Murrie is working as a consultant to co-ordinate the Sumas Prairie Soil Conservation Project.

The meeting was attended by 34 members.

Rhian Evans
Vice-President



PRSSS EXECUTIVE PAST AND PRESENT

photo by Bernie von Spindler

front row (l-r): Eveline Wolterson, Barbara Cade-Menun,
back row (l-r): Martin Carver, Rhian Evans, Trevor Murrie, Art Yee, Kathy Cook

16TH ANNUAL BC SOIL SCIENCE WORKSHOP

The theme of the 16th Annual BC Soil Science Workshop held earlier this spring was 'Soil Management Effects on Soil and Water Quality'. At first glance, one may feel the addition of 'water quality' in the theme is out of context with soil science. However, water quality was deliberately chosen as an indication of the broadening scope of soil science. Soil science is moving from investigating purely soils-related issues into other sciences, and the presentations at the workshop clearly demonstrated this.

Diversification and broadening are common themes in applied sciences today. Separate disciplines are overlapping and otherwise linking as they address issues relating to the environment and sustainable development. Few applied sciences exist as single entities, and the fascinating keynote address by G.C. van Kootens, 'The Economics of Sustainable Development and Land Resources', introduced this idea and set the stage for the following sessions.

There were seventeen papers given over the one and a half day workshop. They presented issues covering nutrient transfer to ground water, through to management techniques for sustaining soil and water quality. The speakers introduced many aspects of research into measuring, sustaining, or repairing soil and water quality in three different resource sectors: agriculture, forestry and industry.

The papers were presented in five sessions, each focused on different issues. Session 1 had an agricultural focus. The four papers presented from researchers in the Ministries of Agriculture and Forestry dealt with aspects of nitrogen transfers occurring from manure and cover crop management. The second session, largely presented from the environmental industry, addressed several aspects of soil/water contamination or remediation. Sessions three and five were focused on soil degradation (erosional loss, compaction, organic matter loss, etc.) techniques. The fourth session took a more philosophical approach to the theme, with two papers presenting current programs for soil conservation and mapping and suggesting the longer term future for this area of

endeavour.

The far-reaching scope of the workshop was seen in this diversity of papers, in the contrasting technical/educational backgrounds of the authors and in the variety of agencies/resource sectors which supported the presentations. Speakers included foresters, agrologists, hydrogeologists, planners, engineers, economists, animal scientists, wildlife biologists, geographers, and even a few soil scientists. There were eleven authors from the two Ministries of Agriculture, seven authors working for the two government forest services, four from the Ministry of the Environment, Lands and Parks, five private consultants, and four authors from Universities.

The theme this year was intended to be broad. The workshop endeavoured to reach across many disciplines and address a variety

of issues and we were pleased with the contributions from such a wide field of research. We anticipate that everyone attending the workshop this year learned something from the presentations and valued the contributions of the speakers. Above all, we hope people enjoyed themselves and took the opportunity to meet with old and new friends.

As a footnote, the proceedings from this year's workshop are being compiled and should be available this fall. Workshop participants will be receiving a copy as part of their registration fees. Non-registrants, or those wishing extra copies, may obtain a copy for \$12.00, by writing to the PRSSS.

Eveline Wolterson
Vancouver

NOTES FROM THE REGIONS

PEACE RIVER REGION

The diversity of soils, landscapes and land use in the Peace region is reflected in the diversity of soils activities found here. Big skies broaden horizons for pedologists, and most projects involve close working relationships with producer groups and stakeholders, in addition to our traditional roles of research and extension.

There are five soil conservation producer groups in the region established under the B.C. - Canada Soil Conservation Program. Cropping systems range from grain/oilseed rotations to forage seeds/ hay production to livestock. The practices being evaluated include zero till, minimum tillage, subsoiling and organic farming. The producers work closely with hired technicians and professional agrologists from Ministry of Agriculture, Fisheries and Food (BCMAFF) and PFRA offices.

In March, 1993 these groups met at the 6th annual soil conservation conference in Dawson Creek. Over 120 people came to hear such high profile speakers as Dr. Jim Bauder from Montana State University, Roger Veseth from University of Idaho, Dr. Cynthia Grant from Brandon Research Station and the dynamic Denise Maurice from Alberta Agriculture. Proceedings may be obtained from the Peace River Soil Conservation Association, Box 2181, Dawson Creek, B.C. V1G 4K9 for \$12.

Kevin Murphy and Jack Dobb of BCMAFF, Dawson Creek are excited about several new research projects to be initiated in 1993. The soils research trials include: soil P calibration work for canola and wheat on acidic soils, the effect of N fertilizer rates and dates of seeding on malting barley quality and the effect of fertilizer ratios and rates on brown girdling root rot in canola.

Rob Kline (BCMAFF, Prince George) often works in the Peace on such projects as best soil management plans with individual producers and providing technical advice to producer groups.

Since November, 1991 a 'subsection' of the Forest Sciences group in the Prince George Region has been established in Fort St. John. Marty Osberg, Paul Sanborn and Mary Kranabetter are still over-committed, but some tasks can be transferred to Richard Kabzems and Rod Negrave in the Peace.

Extension and education on forest soils issues are a large part of Peace/Liard subsection's work. In October, 1992., 60 people

attended a 2 day field tour of mechanical site preparation trials. Responses to the site preparation treatments, in both above and below ground growth, were dramatic. The seedlings had been on the sites for from 5 to 9 years.

Aspen spacing and fertilization trials established over the past two years will be used by Cindy Prescott (UBC) for nutrient cycling and litter decomposition studies.

New research initiatives (funding pending) in 1993 include: effects of compaction on long term productivity of aspen ecosystems, and retrospective studies on seedling root form after mechanical site preparation.

Some people may find Prince George hard to get used to but if you move farther north, things improve!

Sandra Burton, Consultant, Farmington
Kevin Murphy, BCMAFF, Dawson Creek
Richard Kabzems, BCMF, Fort St. John

YUKON SOIL SCIENCE ACTIVITIES

There are two projects that may be of interest to PRSSS members that are on-going in the Yukon this year.

The Yukon/Alaska Society of Professional Soil Scientists is hosting an International Correlation Tour on Permafrost Affected Soils July 18 to July 31, 1993. The tour and associated symposia start in Inuvik, NWT and travel to Fairbanks, AK. Symposia of invited and volunteered papers will precede and follow the field tour. Approximately 60 participants from Russia, China, Hungary, Denmark Norway, U.S. and Canada will visit prepared sites along the tour route in northern Yukon and eastern Alaska. The tour will end at the University of Alaska. The principle focus of the tour will be the testing and development of taxa to describe permafrost soils within the U.S. Soil Taxonomy. It has been proposed that a new order in Soil Taxonomy be established similar to the Cryosol order in the Canadian System of Soil Classification. Of particular note is the participation of 10 Russian soil scientists with extensive experience in the permafrost regions of Asia. The tour is being organized by staff of the U.S.D.A. Soil Conservation Service at Lincoln NE and Anchorage AK along with staff from Agriculture Canada's Centre for Land and Biological Resources Research in Ottawa and White horse. A tour guidebook has been prepared and

a proceedings will be published by the SCS following the completion of the tour. Both documents will be available at no charge from the Agriculture Canada, P.O. Box 2703 Whitehorse, YT Y1A 2C6.

A second project of interest is a joint effort between soil survey staff of Agriculture Canada and Environment Canada's State of Environment Reporting Branch to produce a new comprehensive ecoregion map of Canada. For the past two years, Corinne Selby of the B.C. Unit and I have been involved in extensive consultation with provincial and territorial agencies as well as Forestry Canada to come up with a common ecological framework for reporting, monitoring and describing ecosystem health nationally. For B.C., the ecoregion Map produced by the

provincial department of Environment, Lands and Parks has been adopted with only very minor modifications to correlate with ecoregion boundaries established for Alberta and Yukon. Previous attempts at producing ecoregion maps nationally have not been well received by provinces. The final product should have the endorsement of all agencies in Canada involved with terrestrial renewable resource management responsibilities.

If any member of the PRSSS are through Whitehorse give me a call and I'd be happy to show you around the beautiful Yukon Territory.

Scott Smith

WORKSHOP ON NITROGEN MANAGEMENT AND WATER QUALITY IN MOUNT VERNON, WASHINGTON

Contamination of ground and surface waters by nutrients or pesticides lost from agricultural soils is a subject of widespread concern. Excessive nitrate leaching from cropped land represents not only a potential environmental problem, but a significant waste of a farmer's resources. There are some indications that widespread adoption of alternative practices, e.g. cover crops and/or conservation tillage, might decrease this problem.

This was a subject of the Nitrogen Management and Water Quality Workshop organized by the Oregon State University, on March 18, 1993. The workshop, attended by over 60 people, provided a forum for eight speakers to address the issues of N management and water quality in the Pacific Northwest. The speakers came from government and university in the United States and Canada. A variety of contemporary topics were addressed in the workshop, including, Protecting the Watershed:

Why is it Important to Pacific Northwest Farmers?; Ground water Contamination in Washington; Nitrates and Pesticides in the Abbotsford Aquifer; and Cropping Strategies to Control Nitrate eaching. The workshop also included a tour to cover crop research sites on farmer's fields and the Washington State University Mount Vernon Experimental Station.

Hugh Liebscher from Environment Canada discussed the problem of ground water contamination in the Abbotsford Aquifer, especially in the south Matsqui area. Monitoring of water wells and piezometers has shown that both nitrogen and pesticide concentrations are generally site specific and fluctuate seasonally.

Approximately 60% of the collected samples have nitrate-nitrogen concentrations that exceed the 10 mg/L maximum acceptable concentration for drinking water as defined in the Canadian Drinking Water Quality Guidelines. Ground water



Maja Krzic and Art Bomke at the Mount Vernon Workshop, March 18, 1993

photo by Martin Carver

nitrate contamination is believed to originate from land use activities including exposed manure stockpiles, chemical fertilizers and manure application, and septic effluent fields. Twelve of 23 targeted pesticides have been detected in ground water. Concentrations of ten of the pesticides detected are within established Canadian drinking water guidelines. Two pesticides, 1,2-dichloropropane and 1,3-dichloropropane, for which there are no Canadian drinking water guidelines, have been detected in concentrations that exceed the Washington State water quality standards for ground water. Improved farming practices, enhanced septic field design and maintenance, modified land use activities, and additional research followed by appropriate provincial legislation would result in improvement of ground water quality within the Abbotsford Aquifer.

Dyvon Havens, Wilbur Anderson, and Shiou Kuo from the Washington State University gave an overview of the cropping strategies to control nitrate leaching in the Skagit Valley, WA focusing on crop rotation and cover cropping, alternative practices, which may reduce nitrate leaching into ground water.

**THE LATEST DEVELOPMENTS IN SOILS AT THE
MACDONALD CAMPUS OF MCGILL UNIVERSITY, STE
ANNE DE BELLEVUE, QUEBEC**

April 2, 1993

Bonjour! Ca va bien? A meter of snow has melted in the last week, the sap is running in the maple trees and we are filling out the usual two income tax forms so spring MUST be on its way. What will the 1993 growing season hold for soil scientists in the Department of Renewable Resources? Well, the department might disappear! It is to be combined with entomologists and microbiologists to become the department of who knows what; Environmental Science?

In research, one of the hot topics in Quebec is management of organic wastes; G. Mackenzie, I. O'Halloran, and J. Fyles have projects on the application of sugar refinery waste, pulp processing waste and various composts to agricultural fields and forest plantations. B. Coté, W. Hendershot and J. Fyles continue their work on nutrient cycling and tree species effects on soil fertility in hardwood forests and are applying for funds to extend their work into the boreal and subarctic forests. W. Hendershot is expanding his research into the chemistry of heavy metal contaminated soils.

The faculty was just awarded a major infrastructure grant to build a new research greenhouse facility which will expand opportunities for research under controlled conditions. In the Department of Renewable Resources, the new Lachat autoanalyser is just coming on stream, a welcome replacement for the last set of autoanalysers bought in 1964 (and still running).

Anyone looking for a change in scenery, weather, language and culture is welcome to join us at Mac for a day, for a week, for a term.

Salut!
Jim and Helen Fyle

Material presented is a part of the Cropping Strategies and Water Quality Project initiated in 1991. The project involves an interdisciplinary team of WSU faculty, growers, allied agricultural and private industry representatives, environmentalists, county, state and federal agency personnel. Different cover crop species (white oats, fall rye and winter wheat), planted at different times (mid September to the beginning of October) are examined with regard to effectiveness in capturing nitrogen and improving the soil properties. Preliminary results showed that the fall rye planted in September 1991 accumulated 2.2 t biomass and 106 kg N/ha.

Work conducted in western Washington State coincides in many aspects with the objectives of the UBC Soil and Water Conservation group. Since we all share similar environmental conditions there are many opportunities for future cooperative work.

Maja Krzic
PhD Candidate
Department of Soil Science, UBC

NOTES FROM UBC

Dr. Shannon Berch is leaving the Department of Soil Science as of September 1, 1993 to join the BC Ministry of Forest in Victoria, as Soils Biologist with the Research Branch.

Barbara Cade-Menuin has been awarded the 1993 CSSS Annual Meeting Student Travel Award of \$500 toward expenses to participate in the CSSS annual meetings, being held at St John's Newfoundland this August.

PUBLICATIONS

Dr. G.C. van Kooten gave the keynote address at the 16th BC Soil Science Workshop. His book, *'Land Resource Economics and Sustainable Development, Economic Policies and the Common Good'*, is now available from UBC Press, 6344 Memorial Rd, Vancouver, BC, V6T 1Z2. Telephone (604)-822-3259, FAX 822-6083.

Journal of Potassium Research is published by the Potash Research Institute of India. Further information is available from The Editor, Journal of Potassium Research, Sector 19, Dundaheera, GURGAON - 122001, Haryana, India.

The Society of Indian Foresters publishes a quarterly journal Van Vigyan (in English). Further information is available from General Secretary, Society of Indian Foresters, P.O. New Forest, Dehra Dun-248006 (U.P.), India.

UPCOMING MEETINGS AND EVENTS

October 24-25, 1993

June 23-25, 1993

Soil and Environmental Chemistry Workshop. The workshop, which is part of the Pacific Northwest Regional Section Meeting of the Association of Official Analytical Chemists, will be held at the Evergreen State College, Olympia, Washington, USA. For further information, please contact Yash P. Kalra, Forestry Canada, 5320-122 Street, Edmonton, Alberta, Canada T6H 3S5, telephone (403) 435-7210, FAX (403) 435-7359 or William J. Walker, James P. Walsh and Associates, Inc., 1913 Capitol Ave., Suite E, Sacramento, California 95814, USA, telephone (916) 443-3025, Fax (916) 442-6891.

July 21, 1993

BC Association for Regenerative Agriculture (BCARA) Summer Farm Tour, will be at Olera Farms, 356 Defehr Road, Abbotsford. 6:00 pm meet for tour, 7:00 pm potluck dinner, 7:30 pm business meeting and grower's corner (new tillage equipment). For information call 322-1215.

August 8-11, 1993

3rd Soil and Sediment Contaminant Analysis Workshop. This workshop is organized by the International Association of Environmental Analytical Chemistry (IAEAC). For more information contact the Chair: Dr. G. R. Barrie Webster, Department of Soil Science, University of Manitoba, Winnipeg, MB, R3T 2N2. Telephone (202) 474-6039 or 474-8153, FAX (202) 275-8099, or Internet (E-mail): Webster@ccu.UManitoba.ca

August 19 - 21, 1993

Canadian Society of Soil Science Meetings will be held in conjunction with the AIC Meetings in St. John's, Newfoundland. The field tour will be on August 22, 1993.

October, 1993

The BC SWCS Annual Field Trip will be to Burns Bog, Delta. For more information about the date and time please contact Hugh Hamilton, c/o EVS Consultants, 986-4331.

SCIENCE AND SUSTAINABILITY: Reshaping Agricultural Research and Education. Red Lion Hotel Bellevue (Seattle), Washington. Sponsored by the Western Region sustainable Agriculture Research and Education Program (USDA-SARE) and the Center for Sustaining Agriculture and Natural Resources at Washington State University. For registration information, contact Ms. Norma Fuentes-Scott at (509) 335-2921, and for program/poster information, contact Ms. Colette DePhelps at (509) 335-2887.

November 11-13, 1993

Second Annual Pacific Graduate Students Interdisciplinary Conference on Resources and the Environment. For information please contact PGSIC, c/o Wendy Avis, Department of Geography UBC, #217-1984 West Mall, Vancouver, B.C. V6T 1Z2, telephone (604) 822-2663, FAX (604) 822-6088

November 18-20, 1993

Symposium on "A Decade of Potassium Research", New Delhi, India. Further information is available from the Director, Potash Research Institute of India, Sector 19, Dundaheera, GURGAON - 122001, Haryana, India.

PRSSS NEWSLETTER NO. 25
October 1993

We are now accepting contributions for the next edition of the newsletter
 Submission deadline September 15, 1992

send articles to PRSSS Newsletter Editor
 by
 FAX: 822-9250,
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