



# Bio-Update

*University of Lethbridge - Department of Biological Sciences Newsletter*  
*Spring 2010 Issue*

## ***NEWS FROM THE CHAIR***

Final grades have been submitted and spring is in the air – well maybe not quite given the weather lately. Summer students are starting work. The field season is beginning for many of you. This is the time of the year when my Ph.D. supervisor used to say, “it is time to begin the spring campaign!” He was referring to the annual push many of us make at this time of year to get our research programs into high gear. It is also time for us to acknowledge the outstanding research accomplishments over the past year for the Department of Biological Sciences. We have had another great year in the department. Our graduate program is flourishing. Research productivity is increasing. A notable highlight for this past year is Joe Rasmussen being awarded the 2009 Frank Rigler Award. This award is the highest honour given by the Society of Canadian Limnologists. Congratulations to everyone for another exceptional year! I wish you all the best for continued success!

Cheers,

Brent



## ***IN THE NEXT ISSUE***

Watch for the special graduate student edition of BioUpdate in Fall 2010. As always, this newsletter cannot be produced without the input and support of all Department members, and we thank you for your contributions. If you have suggestions for future newsletter issues, please send them to Tatiana Arjannikova ([arjannikova@uleth.ca](mailto:arjannikova@uleth.ca)) or Katrina Mendez ([katrina.mendez@uleth.ca](mailto:katrina.mendez@uleth.ca)).

## 2009 DEPARTMENT RESEARCH ACTIVITIES

### Awards and Honours:

#### **Department Members:**

Joe Rasmussen was awarded the Frank Rigler Memorial Award from the Society of Canadian Limnologists (January 2010).

John Kastelic was honoured to be chosen the Theriogenologist of the Year for 2009, by the American College of Theriogenologists. By way of explanation, theriogenology is veterinary reproduction (obstetrics, gynaecology, and andrology) and a theriogenologist is a veterinarian who is recognized as a board-certified specialist in animal reproduction. The American College of Theriogenologists is the veterinary specialty organization that certifies veterinarians as specialists in theriogenology. There are approximately 350 members of this organization (just over 10% live in Canada). Entry is by examination; John served on the examination committee for 8 years.

Larry Kawchuk received the Australian Endeavour Research Fellowship. (awarded by the Deputy Prime Minister of Australia, The Honourable Julia Gillard) and was also appointed Honorary Associate at the School of Biological Sciences, University of Sydney, Sydney, Australia.

#### **Graduate Students:**

The *ACA Grants in Biodiversity* program is pleased to announce that the following Biological Sciences students are among this year's grant winners:

- Lars Brinkmann (supervisor J. Rasmussen) – “Combined effects of food web structure and bioenergetics on mercury biomagnification in northern pike (*Esox lucius*) in reservoirs with impoverished food webs”
- Nicole Pilgrim (supervisor A. Hontela) – “Toxicity of maternally-transferred selenium to embryos and larvae of rainbow trout and brook trout”
- Melissa Thomson (supervisor C. Goater) – “Epidemiology of an emerging parasite in co-grazing ungulates in Cypress Hills Park, Alberta”

These projects exemplify the Grant program's goal to enable research that will ultimately conserve, protect, and enhance, Alberta's fish, wildlife and natural habitats. With this year's awards, the *ACA Grants in Biodiversity* has now awarded over \$3.4 million dollars to 341 researchers in its 16-year history.

Shilo Andrews (supervisor L. Flanagan) received the Sulzman Award for best student poster (from over 25 students in session), at the American Geophysical Union (AGU) Annual Fall 2009 Meeting. The Sulzman Award is given in honor of Dr. Elizabeth Sulzman, an award-winning professor and scientist remembered for her tremendous enthusiasm for teaching and research, and for her contributions to the isotope and biogeochemistry community. Preference is given to graduate students using stable isotopes to study soil biogeochemistry.

Kim Dohms (supervisor T. Burg) received an NSERC-PGS D.

Linda Lait (supervisor T. Burg) received both an NSERC-CGS M and an Alberta Ingenuity Graduate Scholarship.

**Journal Articles, Book Chapters, etc.:**

(Department members shown in bold, graduate and independent study students underlined)

Anizon, F., **R.M. Golsteyn**, S. Léonce, B. Pfeiffer, M. Prudhomme. 2009. A three-step synthesis from rebeccamycin of an efficient checkpoint kinase 1 inhibitor. *European Journal of Medicinal Chemistry*. 44: 2234-2238.

**Bandara, S.M.**, N. Savidov and **D. Driedger**. 2009. The impact of selected abiotic stresses on glucoraphanin content in field pepperweed. *Acta Hort*. No.841:323-327.

Basu S.K., S.N. Acharya, **M.S. Bandara**, D. Friebe and **J.E. Thomas**. 2009. Effects of genotype and environment of seed yield and forage yield of fenugreek (*Trigonella foenum-graecum* L.) grown in western Canada. *Aust. J. Crop Sci.* 3(6):305-314.

Basu, S., Acharya, S.N. and **Thomas, J.E.** 2009. Production of High Quality Fenugreek (*Trigonella foenum-graecum* L.): Selecting for optimized yield and early seed maturation. pp. 176. VDM Verlag (Publisher).

Boyko A., and **Kovalchuk I.** 2009. Improvement of plant transformation. Book Chapter. Taylor & Francis. In "Biocatalysis and Agricultural Biotechnology". (Ching T. Hou, Ed.).

Boyko A., Matsuoka, A., **Kovalchuk, I.** 2009. High frequency *Agrobacterium tumefaciens*-mediated plant transformations induced by ammonium nitrate. *Plant Cell Reports*, 28(5):737-57.

Bruant G., Zhang Y., Garneau P., Wong J., Laing C., Fairbrother J.M., **Gannon V.P.J.**, and J. Harel. 2009. Two distinct groups of porcine enteropathogenic *Escherichia coli* strains of serogroup O45 are revealed by comparative genomic hybridization and virulence gene microarray. *BMC Genomics*. 26:402.

Cai, T., **L.B. Flanagan**, K.H. Syed. 2010. Warmer and drier conditions stimulate respiration more than photosynthesis in a boreal peatland ecosystem: Analysis of automatic chambers and eddy covariance measurements. *Plant Cell Environment* 33: 394-407

**Colwell, D.D.**, Otranto, D. 2009 Veterinary Ectoparasitology: In Animal and Plant Productivity, [Ed. Robert J.Hudson], in Encyclopedia of Life Support Systems (EOLSS), Developed under the Auspices of the UNESCO, Eolss Publishers,Oxford,UK, [<http://www.eolss.net>]

**Colwell, D.D.**, Otranto, D., Stevens, J.R. 2009. Oestrid flies: eradication and extinction versus biodiversity. *Trends in Parasitology*, 25:500-504.

Dacal, V., **Colwell, D.D.**, López, C., Pérez, V., Vázquez, L, Cienfuegos, S., Díaz, P., Morrondo, P. Díez-Baños, P., Panadero, R. 2009 Local and systemic cytokine responses during larval penetration in cattle experimentally infested with *Hypoderma lineatum* (Diptera: Oestridae). *Veterinary Immunology and Immunopathology*, 131:59-64

**Flanagan, L.B.** 2009. Phenology of plant production in the northwestern Great Plains: Relationships with carbon isotope discrimination, net ecosystem production and ecosystem respiration. In Phenology of ecosystem processes: Applications in global change research. Ed. Asko Normetts Springer, New York, pp. 169-186.

Greer, M.S., Eudes, F., **Kovalchuk, I.** 2009. Effects of Ammonium Nitrate upon Direct Somatic Embryogenesis and Biolistic Transformation of Wheat. *New Biotechnology*, 26(1-2):44-52.

He, M.L., **Mir, P.S.**, Okine, E.K. and Napadajlo, H. 2009. Effect of conjugated linoleic acids from beef or industrial hydrogenation on growth and adipose tissue characteristics of rats. *Nutr & Metab.* 6:19

He, M.L., Yang, W.Z., You, J.S., Chaves, A.V., **Mir, P.S.**, Benchaar, C. and **McAllister, T.A.**, 2009, Effect of garlic oil on fatty acid composition and glycerol-3-phosphate dehydrogenase activity in differentiating adipocytes. *Asian-Australasian Journal of Animal Sciences* 22:1686-1692.

House, B., N. Prayitno R. Mair, J. Kus, K. Vitovec, L. Que, L. Gemerts, **V.P.J. Gannon, D.** Cvitkovitch and D. Barnett Foster. 2009. Microarray Analysis of Acid Stress Induced Changes in EHEC O157:H7 Virulence. *Microbiology* 155:2907-18

Hudson, A.J. and **K.D. Floate.** 2009. Further evidence for the absence of bacteria in horsehair worms (Nematomorpha: Gordiidae). *Journal of Parasitology* 96(6):1545-1547.

James, C.T., Wisenden, BD and **CP Goater.** 2009. Epidermal club cells do not protect fathead minnows against trematode cercariae: a test of the anti-parasite hypothesis. *Biological Journal of the Linnean Society* 98:884-890.

**Kawchuk, L.M.** and Kalischuk, M.L. 2009. Plant disease resistance genes. In "Recent Research Developments in Plant Genetics". Ed. S.G. Pandalai. Research Signpost. ISBN 978-81-308-0289-3.

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Koturbash, I., **Thomas, J.E.**, **Kovalchuk, O.** and **Kovalchuk, I.** 2009. Heat-killed bacteria induce genome instability in mouse small intestine, liver and spleen tissues. *Cell Cycle*, 8(12):1935-1939.

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- Long, K.D., L.B. Flanagan, T. Cai. 2009. Diurnal and seasonal variation in methane emissions in a northern Canadian peatland measured by eddy covariance. *Global Change Biology* 16: doi: 10.1111/j.1365-2486.2009.02083.x
- Lowe, R. Baines, D., **Selinger, B., Thomas, J., McAllister, T. and Sharma, R.** 2009. *Escherichia coli* O157:H7 strain origin, lineage and Shiga toxin 2 expression affect colonization of cattle. *Appl. Environ. Microbiol.* 75 (15): 5074-5081.
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