

# Bio-Update

University of Lethbridge - Department of Biological Sciences Newsletter  
Fall 2009

## WELCOME FROM THE DEPARTMENT CHAIR

On behalf of the members of the Department of Biological Sciences, it is my pleasure to extend a warm welcome to our new Graduate students. I would also like to send greetings to current Graduate students. There are 62 of you in our department, including 50 M.Sc. and 12 Ph.D. students. With graduate student enrollment at an all-time high, it is hard to miss the young and vibrant community of Life Science researchers and scholars on campus. You are integral and essential to the various research programs in the department and you help us deliver our undergraduate programs. I would encourage you to get to know one another as well as the other members of our Department. Become involved in community, campus and departmental activities. Our next departmental mixer will be Halloween themed, on October 30 in UHall. You should all plan to attend. I will also begin making visits to Hepler Hall, the AWESB and the various research groups in and associated with the department. I look forward to meeting all of you in the near future. If I can be of assistance, please let me know! I wish you all the best for a productive, rewarding and enjoyable year.

~ Brent



### ***You just might be a grad student if...***

- your lab bench is better decorated than your apartment.
- you have ever brought a scholarly article to a bar.
- you rate coffee shops by the availability of outlets for your laptop.
- everything reminds you of something in your discipline.
- you have ever discussed academic matters at a sporting event.
- there is a study carrel in the library that you consider "yours."
- you can tell the time of day by looking at the traffic flow at the library.
- you consider all papers to be works in progress.
- professors don't really care when you turn in work anymore.
- you find the literature cited of journal articles more interesting than the actual text.
- you have given up trying to keep your books organized and are now just trying to keep them all in the same general area.
- you have accepted guilt as an inherent feature of relaxation.
- you find yourself explaining to children that you are in "20th grade".
- you start referring to stories like "Snow White *et al.*"
- you frequently wonder how long you can live on pasta without getting scurvy.
- you look forward to taking some time off to do laundry.

## ***NEW GRADUATE STUDENTS IN THE DEPARTMENT***



### **ROBERT ANNETT**

**Hometown:** Brooks, Alberta

**Undergraduate Degree:** B.Sc. Molecular Genetics (U of A), B.Sc. Environmental Science (U of L)

**Graduate Project:** (M.Sc.) Currently studying how agricultural runoff and agricultural drain water is affecting fish reproduction and sex determination in southern Alberta.

**Supervisor:** Dr. Alice Hontela



### **ALLISON BECKER**

**Undergraduate Degree:** B.Sc. Environmental Science (U of L)

**Graduate Project:** (M.Sc.) Aquatic-terrestrial energy subsidy within the Oldman River Basin by analysis of stable carbon isotope. I feel that understanding the function of aquatic ecosystems will be significant in the future as Alberta faces water shortages.

**Supervisors:** Dr. Joseph Rasmussen & Dr. Andy Hurly

**Other interests:** Birding, reading, piano/guitar, trying different ethnic foods (just eating in general haha!)



### **ANDRII BILICHAK**

**Hometown:** Ivano-Frankivsk, Ukraine

**Undergraduate Degree:** B.Sc. Biochemistry, (Precarpathian University, Ivano-Frankivsk, Ukraine)

**Graduate Project:** (M.Sc.) The improving of plant transformation frequency and quality via manipulation of recombination and chromatin modification machineries using RNA interference

**Supervisor:** Dr. Igor Kovalchuk

**Other interests:** Soccer, hiking, guitar playing, table tennis, watching movies



### **CODY BUCHANAN**

**Hometown:** Kelowna, B.C.

**Undergraduate Degree:** B.Sc. Microbiology (UVic)

**Graduate Project:** (M.Sc.) My project will focus on the foodborne pathogen, *Campylobacter*, a bug that is associated with enteric disease around the world. My research involves the development and testing of a rapid genomic fingerprinting system, which when combined with epidemiological data will hopefully provide us with a unique understanding of the ecology and genetics of *Campylobacter* in Southern Alberta.

**Supervisors:** Dr. Eduardo Taboada & Dr. Jim Thomas

**Other interests:** HUGE Flames fan!



### **KIM DOHMS**

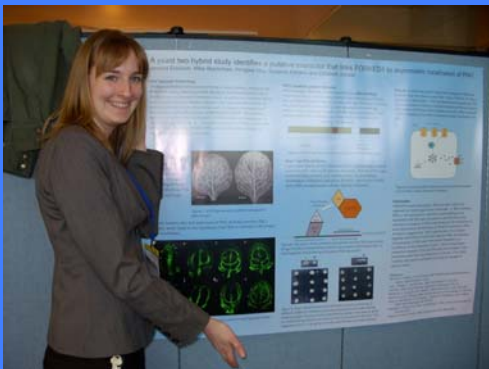
**Hometown:** Fenwood, Saskatchewan

**Undergraduate Degree:** M.Sc. Biology (U of Regina), B.Sc. Biology (U of Regina)

**Graduate Project:** (Ph.D.) Evolution & Ecology; Using genetic markers and morphological characteristics, I am investigating variation in two high latitude, resident North American corvids - Gray Jay and Clark's Nutcracker. Specifically, I am using this variation to investigate dispersal patterns from unglaciated regions to previously glaciated areas and how physical barriers affect dispersal in these two bird species.

**Supervisor:** Dr. Theresa Burg

**Other interests:** Birdwatching, photography, camping, hiking, sustainable development & social responsibility, gardening & local food, yoga, cooking, music, crafting



### **JESSICA ERICKSON**

**Hometown:** Lundbreck, Alberta

**Undergraduate Degree:** B.Sc. Biology (U of L)

**Graduate Project:** (M.Sc.) My project focuses on the genetics of plant development and I am currently investigating the function of the *Arabidopsis thaliana* gene *FORKED1* in vascular patterning.

**Supervisor:** Dr. Elizabeth Schultz

**Other interests:** Reading, biking, painting





### **BRENDAN GRAHAM**

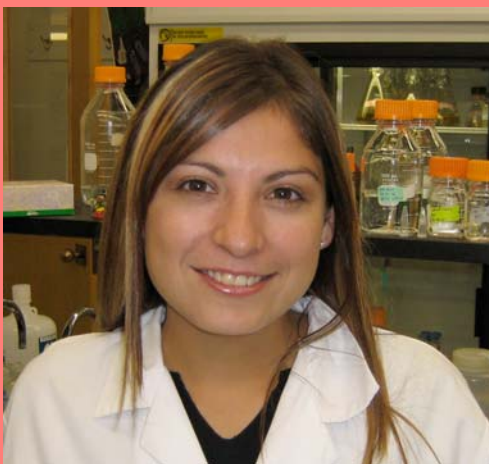
**Hometown:** Regina, Saskatchewan

**Undergrad Degree:** B.Sc. Biology (U of Regina)

**Graduate Project:** (M.Sc.) My project will look at the population genetics and genetic variation in the Hairy Woodpecker. This will help us answer questions about post-glacial expansion and how natural barriers affect dispersal.

**Supervisor:** Dr. Theresa Burg

**Other interests:** Bird watching, cycling and playing sports



### **JENNYKA HALLEWELL**

**Hometown:** Brooks, Alberta

**Undergraduate Degree:** B.Sc. Biochemistry (U of L), M.Sc. Biochemistry (U of L)

**Graduate Project:** (Ph.D.) I am currently determining relationships between incorporating wheat distillers dried grain solubles and subsequent shedding of *E.coli* 0157:H7 in commercial feedlot cattle. I will also participate in a challenge study where I will monitor inoculated cattle to assess feed substrates on the persistence of *E. coli* 0157:H7.

**Supervisors:** Dr. Tim McAllister & Dr. Jim Thomas

**Other interests:** I enjoy golfing, playing guitar, curling up to read a good book and running after my 10 month old son who keeps me in great shape!



### **ANDY HUDSON**

**Hometown:** Calgary, Alberta

**Undergraduate Degree:** B.Sc. Environmental Science (U of L)

**Graduate Project:** (M.Sc.) I am using molecular and biochemical techniques to further characterize the assembly and function of small nucleolar ribonucleoprotein particles (snoRNPs) from the protist organisms *Giardia lamblia* and *Euglena gracilis*. Because other eukaryotic organisms (such as humans) possess similar complexes, the study of snoRNPs in protists may yield additional information about: 1) how snoRNPs function in other eukaryotes and their evolution; 2) the molecular basis of human diseases related to snoRNP dysfunction; and 3) strategies for the treatment of snoRNP-related diseases.

**Supervisor:** Dr. Tony Russell

**Other interests:** In my spare time I enjoy golfing, tennis and playing electric guitar. I also participate in a karate class here at the university.



### **LINDA LAIT**

**Hometown:** Ottawa, Ontario and Edinburgh, UK

**Undergraduate Degree:** B.Sc. Biology (U of L)

**Graduate Project:** (M.Sc.) I will use molecular techniques to study the population dynamics of the boreal chickadee, focusing on the postglacial expansion of the species

**Supervisor:** Dr. Theresa Burg

**Other interests:** reading, movies, travelling, gardening



### **TREVOR MACMILLAN**

**Hometown:** Sudbury, Ontario

**Undergraduate Degree:** B.Sc. Biochemistry (U of S)

**Graduate Project:** (M.Sc.) As part of the Canadian Triticale Biorefinery Initiative (CTBI) I am developing a peptide based transformation system designed to target specific organelles (Chloroplast and Mitochondria) in plant cells. This system will be applied to the production of new strains of Triticale for biofuels and bioplastics.

**Supervisors:** Dr. François Eudes & Dr. Igor Kovalchuk

**Other interests:** My hobbies include rock climbing and snowboarding.



### **ASHLEY MARCHUK**

**Hometown:** Red Deer, Alberta

**Undergraduate Degree:** B.Sc. Biological Sciences (U of L)

**Graduate Project:** (M.Sc.) My project aims to characterize new small nucleolar RNA (snoRNA) genes and study their genomic organization and mode of expression in the early diverging protist organism, *Euglena gracilis*. My goal is to deduce the evolutionary relationship of snoRNAs between protists, “higher” eukaryotes and archaeal organisms.

**Supervisor:** Dr. Tony Russell

**Other interests:** I enjoy camping, reading a good book and playing softball.



### **NICOLE PILGRIM**

**Hometown:** Fort McMurray, Alberta

**Undergraduate Degree:** B.Sc. Biological Sciences (U of L)

**Graduate Project:** (M.Sc.) Determining the effects of maternally transferred selenium on rainbow trout and brook trout larvae.

**Supervisor:** Dr. Alice Hontela

**Other interests:** going to the gym, watching movies, reading, traveling and seeing new things



### **NATHAN PUHL**

**Hometown:** Lethbridge, Alberta

**Undergraduate Degree:** B.Sc. Biochemistry (U of L)

**Graduate Project:** (M.Sc) I will be studying the role of commensal bacteria in host-pathogen interactions in the intestinal tract of mammals. In addition, I will also be assessing impacts on intestinal microflora, infection, and host behavior through the brain-gut axis.

**Supervisors:** Dr. Brent Selinger & Dr. Doug Inglis



### **PAULO PULGARIN**

**Hometown:** Medellín, Colombia

**Undergraduate Degree:** B.Sc. Biology/Zoology (University of Antioquia)

**Graduate Project:** (M.Sc.) I use an integrative approach that includes genetics, geography and bioacoustics. I am going to explore genetic and acoustic variation of the Downy woodpecker (*Picoides pubescens*) across the species' range. I will test hypotheses related to the influence of the Pleistocene glaciation on the distribution and genetic structure of the current populations. I also aim to explore if the genetic variation matches the acoustic and phenotypic variation.

**Supervisor:** Dr. Theresa Burg

**Other interests:** birdwatching, hiking, bicycling, swimming, camping, reading, traveling / ornithology, systematics, biogeography, bioacoustics, urban biology.





### **ANDREA RUTLEDGE**

**Hometown:** Lethbridge, Alberta

**Undergraduate Degree:** B.Sc. Psychology/Animal Behaviour (U of L)

**Graduate Project:** (M.Sc.) Effects of Round Up, glyphosate, and polyoxyethylated amine on rainbow trout antipredator behaviour

**Supervisor:** Dr. Alice Hontela

**Other interests:** I like pretty much anything that allows me to avoid large crowds and loud noises, devising different ways to avoid speaking in front of aforementioned large crowds, and the use of humour to make a point.



### **EDMUND (EDDIE) SOTTIE**

**Home country:** Ghana

**Previous degrees:** B.Sc. Agriculture (U of Cape Coast); M.Phil. Animal Science/Nutrition (U of Ghana)

**Graduate Project:** (Ph.D.) Development of high-performance grazing systems in semi-arid environments.

**Supervisors:** Dr. Jim Thomas & Dr. Surya Acharya

**Other Interests:** Listening to music, reading, playing and watching soccer.



### **ANTHONY STUMBO**

**Hometown:** Fargo, North Dakota and Moorhead, Minnesota

**Undergraduate Degree:** B.Sc. Ecology/Evolutionary biology (Minnesota State University-Moorhead)

**Graduate Project:** (M.Sc.) I am studying the relationship between fathead minnows (*Pimephales promelas*) and trematode parasites of the genus *Ornithodiplostomum*. I will focus primarily on the behavior of the minnows, and ways in which they avoid infection.

**Supervisor:** Dr. Cam Goater

**Other interests:** Traveling, hiking, reading, beer, scuba, mischief/shenanigans



## **PAUL S. WALZ**

**Hometown:** Sault Ste. Marie, Ontario

**Undergraduate Degree:** B.Sc. Biology (University of Western Ontario)

**Graduate Project:** (M.Sc.) *Escherichia coli* O157:H7 is responsible for many ailments and deaths worldwide. Unfortunately it is also commonly found in the drinking water of large numbers of individuals. Boiling water is a common way to purify, but is it safe to consume? My research is the analysis of the pathogenic heat-killed *E. coli* O157:H7 bacteria and the effects of the entire bacteria (and its parts) on the individual who is consuming the water. In past studies, parts of the bacteria have been shown to cause malignancies within mice, therefore the potential for heat-killed bacteria such as O157:H7 to cause genomic instability with tissues in direct contact or even distal tissues within the individual is of concern.

**Supervisors:** Drs. Olga & Igor Kovalchuck

**Other Interests:** Fishing, Jiu jitsu, biking, hockey, football, hiking.



### WHY GRADUATE STUDENTS ARE LIKE CATS

- They are your friends if you feed them.
- They talk to you and you can't understand what they are saying.
- They tend to run amok in the apartment/house for no apparent reason in short bursts of frenzy, followed by dormancy.
- They can survive with a minimum of attention, but do like to be noticed and praised every so often.
- They are creatures of the night.
- They follow instructions if they feel like it.
- Food is very important to them. Sleep is also very important to them.
- Both can sleep or otherwise ignore you while you are talking to them.
- Both hide when something big and noisy (vacuum cleaner or supervisor) comes into their vicinity.

A grad student, a post-doc, and a professor are walking through a city park and they find an antique oil lamp. They rub it and a Genie comes out in a puff of smoke. The Genie says, "I usually only grant three wishes, so I'll give each of you just one."

"Me first! Me first!" says the grad student. "I want to be in a luxurious hotel room in Las Vegas with all-you-can-eat, no-charge room service." Poof! He's gone.

"Me next! Me next!" says the post-doc. "I want to be in Hawaii, relaxing on the beach with a professional hula dancer on one side and a Mai Tai on the other." Poof! He's gone.

"You're next," the Genie says to the professor.

The professor says, "I want those guys back in the lab after lunch."



## ***OTHER NEW FACES IN THE DEPARTMENT***



**Rob Laird** joined the department as an assistant professor in July 2009. His studies in ecology and evolutionary biology began at Queen's University where he completed his BSc and MSc degrees in plant community ecology. This was followed by a PhD in John Addicott's lab at the University of Calgary, where he studied belowground-aboveground indirect effects between soil fungi and insects, and subsequently a post-doctoral fellowship in Tom Sherratt's lab at Carleton University, where he studied the evolution of senescence (a.k.a. aging). At the U of L, Rob is working on two lines of research: plant-insect interactions and evolutionary dynamics, the latter encompassing the evolution of cooperation, the evolution of senescence, and the evolutionary ecology of non-transitive competition (e.g., as in the game "Rock-Paper-Scissors"). His lab uses field/laboratory work, as well as mathematical and computer modeling.



**Kevin Judge** joined the department in September 2009 as a postdoc in the Cade Lab. He did both his Bachelor's and Master's degrees at the University of Guelph, where he worked with Dr. Ron Brooks on bullfrog mating behaviour and the conservation of amphibians. After spending two years applying his degrees following his MSc, Kevin returned to academia to do his Doctorate in the lab of Dr. Darryl Gwynne at the University of Toronto Mississauga. While at UTM, he studied sexual selection in field crickets, principally looking at male investment in important life history traits such as sexual display and survival. After a short postdoc with Dr. Glenn Morris and Dr. Gwynne, Kevin joined the Cade Lab where he plans to continue working on sexual selection in crickets as well as continuing past work on measuring selection in a primitive group of nuptial feeding orthopterans. Kevin is also an avid choral singer and is currently looking for a choir to join.



**Abdul Lone** was born and raised in Kashmir, India. He obtained a DVM from S.K. University of Agricultural Sciences and Technology, Kashmir, and his PhD. (Microbiology) from Ontario Veterinary College, University of Guelph. He also majored in Biochemistry and Immunology at the National Dairy Research Institute, India. Abdul's field of specialization is Bacterial Pathogenesis. During his doctoral and post-doctoral research at Guelph, he studied how *Actinobacillus pleuropneumoniae*, a high mortality respiratory-tract bacterial pathogen of pigs, interacts with the respiratory innate immune components found in the bronchoalveolar fluid. Microbial pathogenesis is an outcome of host-pathogen interaction resulting in host damage. This interaction is intricately linked to the environment existing within and outside of the host. As a post-doctoral fellow with Dr. Brent Selinger's group, Abdul is studying the role of host microbiota in modulating this interaction. They will be using *Campylobacter jejuni* as a model pathogen in animal models of infection to study how microbiota influences *C. jejuni* pathogenesis. When he has free time, Abdul enjoys long walks in scenic landscapes.

### **FOR YOUR INFORMATION**

#### **ACA GRANTS IN BIODIVERSITY:**

Are you interested in biodiversity research? Information and application forms for this year's competition for the **ACA Grants in Biodiversity** are available on the website

**<http://www.acabiodiversity.ca/>.**

This grant program is sponsored by the Alberta Conservation Association, and has been established to increase knowledge of flora and fauna in Alberta, and to support Alberta-based research. Graduate students and postdoctoral fellows are invited to submit applications outlining proposals for research studies to be done in Alberta. Any area of interest relevant to biodiversity will be considered.

**Please note that applications must have signatures from your Department, Faculty and University.** Applications must be received at the address indicated on the form by 4:00pm, December 1, 2009.

For more information about the grants, contact Tracy Stewart at [tracy.stewart@ualberta.ca](mailto:tracy.stewart@ualberta.ca).

#### ***Have information that you would like to see in a future issue of the newsletter?***

This newsletter cannot be produced without the input and support of all Department members and graduate students, so if you have suggestions, comments, or material for the newsletter, please contact Katrina Mendez ([katrina.mendez@uleth.ca](mailto:katrina.mendez@uleth.ca)).