



Greetings from Biology

Welcome to another edition of the Biology Newsletter. As you will see in the pages to follow, the Biology Department continues to evolve.

Since the last Newsletter was published, Mel Robertson stepped down after an impressive term as Head of the Department for 9 years! After some initial reservations, Chris Moyes became our next Head and has been doing an admirable job for the past year.

Despite the challenges of a difficult financial climate, the quality of research and teaching in the Department remain among the best that this country has to offer. One of the key reasons for this is the additional financial support now provided by our alumni and friends for a variety of recent initiatives. We would like to thank all of our donors for the positive “can-do” attitude that this helps to maintain within the Department during tough economic times.

Unfortunately, we must report on the passing of two icons within the Queen's Biology family since the last Newsletter was published.

We are sad to include obituaries for Bill Newcomb and Marg Phelan in the pages that follow.

As in the past, this newsletter will also describe some of the impressive achievements of our students, faculty and alumni. We will also introduce you to a new addition to the faculty in Biology, Dr Fran Bonier.

We hope you enjoy catching up on many of the recent developments within Biology.

Bruce Tufts

◀ A pair of Trumpeter Swans and their dusky offspring overlook a rare wintering Wood Duck at the Queen's University Biological Station. Both species represent success stories. Wood Ducks have rebounded since the early 1900's to become one of the most common breeding ducks on QUBS properties (although they rarely stay through the winter). Trumpeter Swans were extirpated from Ontario, but now flourish at the biological station and elsewhere thanks to reintroduction efforts.

— Paul Martin



Awards to Queen's Biology Graduate Students

Anna Hargreaves, a PhD student with Chris Eckert, won two major prizes at the recent Canadian Society for Ecology & Evolution conference in Montreal for the best student talk at Genomes to Biomes 2014 and also the New Phytologist Prize for the best presentation in botany (posters and oral).

Emily Stewart and **Joshua Thienpont** (both supervised by John Smol) won the 2013-2014 W. Garfield Weston Doctoral Award and W. Garfield Weston Postdoctoral Fellowship, respectively, in Northern Research.

Recent Headlines

Peter Hodson wins Graduate Supervision and Teaching Awards

Peter Hodson won the 2014 Award for Excellence in Graduate Student Supervision, as well as the inaugural 2013 Excellence in Graduate Teaching Award for his course BIOL 856 (Aquatic Toxicology).

NSERC Strategic Grants awarded to Cumming and Smol

In 2013, Dr. Brian Cumming and Dr. John Smol were each awarded an NSERC Strategic Grant. Cumming's project is entitled "Assessment of the importance of nitrogen deposition and climate on aquatic production in Boreal lakes downwind of the Athabasca Oil Sands Region" and Smol's is entitled "Predicting dissolved oxygen concentrations in Lake trout lakes: Developing new tools for a multiple-stressor world".

Martin and Nelson win Departmental Teaching Awards

In 2013, Dr. Paul Martin was the recipient of the Biology Innovation in Teaching Award (BITA) and Dr. William Nelson was the recipient for the Biology Excellence in Teaching Award (BETA). These awards recognize outstanding contributions to undergraduate and graduate teaching in Biology over the previous three years.

Nelson Publishes Paper in Science on Insect Outbreaks

Bill Nelson and colleagues from Penn State University (USA) and the National Institute for Agro-Environmental Sciences

(Japan) published an important paper about insect outbreaks in the prestigious journal, *Science*, in 2013. Dr. Nelson and his collaborators used a combination of mathematical modeling and analysis of moth outbreak cycles to demonstrate the important impact of temperature on moth population cycles.

Smol Wins another Prestigious NSERC Research Award

Dr John Smol and his brother, University of Ottawa professor, Dr Jules Blais, were recently awarded the Brockhouse Canada Prize for Interdisciplinary Research from NSERC. The prize recognizes teams of researchers who have produced a record of excellence in interdisciplinary research in the natural sciences and engineering.

Lefebvre Wins Alumni Teaching Award



Dr. Dan Lefebvre has won the prestigious Alumni Teaching Award, one of the top teaching honours at Queen's University. Dan teaches a range of courses, from

first year undergraduate to graduate. His students extol his skills as an engaging and thoughtful teacher. Currently involved with the Centre for Teaching and Learning at Queen's, Dan works hard at designing new interactive learning techniques for his courses. Dan is also active in developing new approaches to help engage his students in a large classroom setting.

Adapted from Queen's News

Generous Gift creates Elbow Lake Environmental Education Centre



Most of us, and most alarmingly many young people, are increasingly disconnected from nature and the outdoors. Laurie Thomson and Andrew Chisholm feel strongly that it is essential to educate the public, and particularly children, on the wonders of nature and the challenges we face in conserving it; as Ms. Thomson says, "...the simple act of going for a walk in the woods, or even

sitting on a bench surrounded by trees reminds us that we are a part of something much greater than us, something that is vital to the survival of all of us and that must be protected."

Their belief in the importance of a connection with nature inspired them to make a generous donation to the Queen's University Biological Station (QUBS) that will help us create wonderful opportunities for children and their families to explore and learn about the natural world. The donation cemented a partnership between QUBS and the Nature Conservancy of Canada, allowing the creation of the Elbow Lake Environmental Education Centre. The Centre is located on the shores of pristine Elbow Lake within the 400-hectare Frontenac Arch Natural Area, just 25 minutes north of Kingston. The property itself features a wealth of plant and animal species, several of which are of conservation concern including Canada's largest snake species, the Grey Ratsnake, the Five-lined Skink (Ontario's only lizard), and the endangered Cerulean Warbler. It is home to our new EcoAdventure Camp that allows 10 to 14 year old children to experience nature first-hand, guided by undergraduate counselors from Queen's and visiting experts. Ultimately the Centre will host a wide diversity of outreach activities from public and high school field trips, through adult nature workshops and university field-based courses, to self-guided hikes along signed trails.

Journalist Richard Louv has claimed that the myriad negative psychological consequences of isolation from nature are sufficient to warrant a name - nature deficit disorder. Ms. Thomson believes that the remedy is to allow "kids to explore and learn about the natural world - not in a terribly structured way, but in a way that will allow them freedom to discover." Her hope is that the Centre will also provide a place for "adults to be kids again," and a place where all can be immersed in nature and ask even the most basic questions about our natural world. Ms. Thomson suggests, "ultimately children who develop an appreciation of, and connection to, nature will become environmentally aware adults who make informed decisions." We would like to express our most sincere gratitude to Laurie Thomson and Andrew Chisholm. Their incredible donation will help make QUBS, together with NCC and Queen's University, leaders in environmental public outreach.



Adele Crowder receives Field Botany Award



The Field Botanists of Ontario, an organization devoted to botany and conservation, has awarded professor emeritus Adele Crowder its prestigious John Goldie Award for her “significant contribution to the advancement of field botany in Ontario.” Dr. Crowder received the award at the October meeting of the Kingston Field Naturalists.

Now 87, Dr. Crowder has devoted most of her life to studying and teaching the mysteries of plant ecology, paleoecology and biology. She graduated from Dublin University in 1947 and went on to complete her PhD on the chemistry of peat bogs; after working as a research associate in paleoecology at the University of Belfast.

Dr. Crowder arrived in Kingston in 1966 after her husband Chris began teaching history at Queen’s. With young children in tow, Dr. Crowder decided full-time work was not an option so she began her career at Queen’s teaching part-time in biology and paleoecology.

She eventually became curator of the Fowler Herbarium, a mini-museum of sorts, housing an exhaustive collection of rare plants. The herbarium had fallen into disrepair at the turn of the century and was in dire need of a facelift and some severe cataloguing. With funds from colleagues Bill Roff and Roland Beschel, Dr. Crowder breathed new life into the herbarium, using her classic European taxonomy training, which she describes as “very old-fashioned but very useful” adding “we knew enough Latin to find our way around so it was great fun.”

From her earliest days with the herbarium to her part-time lectureships and working with multiple colleagues to completely overhaul the biology curriculum in the 1970s, Dr. Crowder has been a trailblazer. Her passion for nature, the environment and for helping students learn environmental stewardship through study is most certainly her legacy. She is a passionate advocate for the protection of significant natural areas, and spent 10 years working to help remediate the invasion of *Myriophyllum* and blue-green algae in the Bay of Quinte.

When asked to describe her greatest accomplishment as a professor, a field botanist, a biologist and scientist, Dr. Crowder says without hesitation, “my students. Not just the doctoral ones. I mean students at all levels. I always enjoyed teaching.”

Dr. Crowder is still an avid nature lover and minimalist who believes in living simply, buying locally and without many of the modern-day trappings and gadgetry that can take us away from nature. That, she says, is one way of surviving a world that appears to be moving uncontrollably away from nature.

“You’ve got to do your best. For someone like me it’s about education, trying to encourage people to live more simply, more naturally and to live with less ‘stuff’. Even as we try to move forward more responsibly with things such as solar and wind power, we are finding that some of these wind farms are being located in rare bird habitats. We have to educate people and keep on battling.”

*By Holly Bridges
Adapted from Queen’s News*

John Smol appointed to Officer of the Order of Canada

Award-winning professor and scientist John Smol has added another accolade to his list of honours: Officer of the Order of Canada. Dr. Smol is recognized as one of the world's foremost experts on long-term changes to lakes and rivers, and has made profound contributions to identifying environmental change due to human and natural forces. The Officer of the Order of Canada award recognizes a lifetime of achievement and merit of a high degree, especially in service to Canada or to humanity at large.

"I am absolutely thrilled by this honour," says Dr. Smol, then on a speaking tour through China. "I am also aware that whatever credit I may get from my work at Queen's University is, in fact, a collective effort from highly dedicated students, post-doctoral fellows and other researchers that I have the privilege to work with in my lab."

Dr. Smol is a Professor in the Departments of Biology and Environmental Studies, and holds the Canada Research Chair in Environmental Change. He is the founder and co-director of the Paleoecological Environmental Assessment and Research Lab (PEARL) at Queen's, where he leads a group of approximately 30 students and other researchers dedicated to studying the history of lake environments. He is credited with demonstrating how paleolimnology, the study of ancient lake deposits, enables us to trace humanity's impact on our environment over time. His research has led to increased protection of our inland waters, and has provided evidence of human-made contributions to climate change in the last century.

"It is wonderful to see Dr. Smol recognized for his contributions at the hands of His Excellency the Governor General," says Principal Daniel Woolf.

"This award puts him in extremely good company with some of Canada's most accomplished individuals. Queen's is very fortunate to have Dr. Smol in our research community."

Since 1990, Dr. Smol has received over 40 research, teaching, and outreach awards related to his environmental work. He has authored over 450 journal publications and book chapters, 19 books, and 800 conference papers. He is the founding editor of the *Journal of Paleolimnology*, and the current editor of *Environmental Reviews*. In 2012, Dr. Smol was elected Chair of the International Paleolimnology Association.

Dr. Smol was appointed Officer of the Order of Canada on June 28th, 2013. Congratulations to Dr. John Smol and the team at PEARL for this well-deserved recognition.



A New Addition: Fran Bonier



It has been an exciting time for the Biology Department as we welcomed a new addition to the faculty: Dr. Fran Bonier joined us as an Assistant Professor in July 2013. Fran arrived at Queen's in 2007 and has established herself within the biology community. She has already launched a productive research program, worked with many undergraduate and graduate students and developed several new projects and collaborations.

Fran completed her Masters degree in Zoology at the University of Idaho where she studied captive cougars with Steve Austad. Fran then went on to attain her PhD in Zoology from the University of Washington, Seattle, where she studied the effects of urbanization on birds with John Wingfield. Her work with birds, however, did not stop in Seattle - Fran took over as the head researcher on the tree swallow population at QUBS, originally established in 1975 by Emeritus Professor Raleigh Robertson.

"Broadly, my research focuses on trying to figure out how animals cope with challenges in their environment", says Fran. "Most animals lead really challenging lives – they deal with disease, competition, bad weather, food shortages, predators – and they need to respond to those challenges appropriately in order to survive and breed."

More specifically, Fran focuses on the hormonal responses of animals to these environmental challenges, and the ways that these hormones influence behaviour, physiology, and resource allocation.

The close proximity of QUBS and the well-established population of tree swallows, as well as other native species, have helped facilitate the creation of several new projects within Fran's lab. For example, a recent project led by her postdoc, Adam Lendvai, involves experimental manipulations of brood size, nestling begging calls, and glucocorticoid hormones in tree swallows. However, research in Fran's lab is not limited to tree swallows. MSc student Sara Burns is experimentally manipulating winter food availability in black-capped chickadees in order to investigate how food affects hormones, behaviour, and the relationship between hormones and behaviour. Laure Schoenle, a PhD student with Fran, is experimentally manipulating glucocorticoids and malaria infection in red-winged black birds to examine the ways in which these hormones influence response to disease, and the ways in which malaria influences the birds' hormones, behaviour and physiology.

"Some of these results might have conservation implications, or even implications for human health, as many of the endocrine mechanisms are highly conserved across vertebrates", says Fran. "But, my goals are more directly related to my interest in answering fundamental scientific questions."

Fran chose to study birds due to several factors: their reliance on a nest site for rearing offspring allows for a close study of their reproduction, their willingness to be observed closely makes for easier observations, and the large, already-established source of information from decades of previous studies provides a solid foundation for research.

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Photo courtesy of P-G Bentz

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"Birds are also a lot easier to blood sample than cougars", she adds.

Fran is currently supervising two Student Work Experience Program (SWEP) students up at QUBS, a program she has been involved with since 2008. "I think this program is great, both for employers like me and for the students", says Fran.

Many students, influenced by their positive experience in SWEP, choose to carry on with research in their academic career. Several of Fran's SWEP students have continued on to pursue honours thesis projects, and in one case, graduate work, with Fran.

In the near future, Fran plans on getting her hormone and molecular lab up and running and will be applying for more grants. Fran is also hoping to recruit more graduate students to pursue work on the potential carry over effects of food availability and predation risk, both within individuals and across generations. Starting in 2014, Fran will be co-teaching BIOL 302 in the fall and will be teaching a new course entitled Evolutionary Medicine (BIOL 442) in the winter term.

Congratulations to Fran and the members of her lab for their achievements thus far. We look forward to seeing the new lab take flight, and we are certain that Fran will soar as an Assistant Professor in the Department.

Alumni Profile: John L Wallace, Biology '79

Purely by chance, much of the curriculum of Biology 101 in 1975-76 overlapped considerably with that of my grade 13 biology class, so I managed to get an 'A'. It gave me a false sense of security about my skills in biology, to the extent that I believed I would have no difficulty in taking on an extra course during the fall term of my second year. That decision resulted in an abrupt wake-up call with respect to my true skills in biology (I barely passed), but it also gave me the opportunity to meet Dr. Gerry Morris for the first time. Gerry was a fantastic teacher, full of enthusiasm and humour. At the end of my 3rd year I had decided that after graduating I would do an MBA. I was having trouble identifying biology courses I wanted to take in 4th year, and in the end I signed up for the 'thesis project' course. Because of my positive experience with Dr. Morris back in 2nd year (aside from the grade), I approached him to be my supervisor for the project. It was a life-changing decision, because that year working in Gerry's lab was what convinced me to pursue a career in research. Gerry's passion for research was infectious, and similarly passionate students and research assistants populated his lab. I think it was the first time in my life that I felt that I had found something that I could do well. So much for the MBA: I decided to stay on and do a Master's with Gerry. That was a great period as well. There was a fantastic community of grad students in Earl Hall who would

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regularly work late into the evening and then gather at Grad House for a pint or two. We were often joined by several of the newly appointed faculty members, like Jeanette Holden and Virginia Walker. I completed the MSc in just over a year and was off to the University of Toronto to do a PhD in Medical Sciences. In Gerry's lab I had been working on prostaglandins and their remarkable ability to protect the stomach from injury. I continued working on this topic in Toronto, and when finished, I joined the laboratory of Sir John Vane in London, England. Sir John had just won the Nobel Prize for his discovery of the mechanism of action of aspirin (inhibition of prostaglandin synthesis). The three years in London was another amazing experience for me, as the group was quite large and there were people from all over the world. We had tremendous resources at our disposal and we made the most of it. Three years flew by.

Nearing the end of my post-doctoral studies in England, I wrote to two universities in Canada asking if they would sponsor me for a Medical Research Council Scholarship. Fortunately, Vivian Abrahams from Queen's was quick to reply positively, and in the fall of 1986 I joined the Department of Physiology at Queen's. My wife (Beth) and I were married in the chapel at the theological college in 1987, with Gerry Morris as my Best Man. Our first daughter (Alexandra) was born at KGH in 1989 (she, and her sister Evelyn both graduated from Queen's in recent years). Out of the blue, I was approached by a colleague at the University of Calgary, asking if I would consider moving there. I was very happy at Queen's, but he encouraged me to come to Calgary for a visit. Suffice to say that I was duly impressed and we decided to take their offer. It was a tremendous opportunity and the funding from the Alberta Heritage Fund helped me to launch my first entrepreneurial venture. With some colleagues from Italy, I founded NicOx in 1996. The company designed novel anti-inflammatory drugs, based on some of my research findings. In 1999 NicOx began trading on the Paris Stock Exchange and for the following 8 years I was chair of their scientific advisory board, which included two Nobel Laureates. The company is based in the south of France, very close to the town of Antibes.

I very much enjoyed the mix of science and business. In 2004, I decided to launch a new company, which I named "Antibe" (pronounced "on-teeb"). Once again the company was focused on a new type of anti-inflammatory drug. I needed help running the company and ended up hiring Dan Legault to be the CEO. Dan and I had met in the Gordon House residence on our first day at Queen's back in 1975. As our CFO we hired Alain Wilson, whom we had both met in Gordon House on his first day at Queen's in 1976. I accepted a job at McMaster in 2009, moving closer to Toronto where Antibe has its headquarters. I also finally got around to doing an MBA, 30 years after putting it off to do a Master's with Gerry Morris. While our drugs were performing exceptionally well in all of the testing we were doing, the world of finance was not doing so well (and still isn't), so finding money to run the company was incredibly challenging. However, in 2012 we managed to acquire the financing that we need to complete the critical human testing of our most promising drug (for treating arthritis). Antibe Therapeutics began trading on the Toronto Venture Exchange in June of 2013.

Without question, any success that I have achieved is a result of my years in Queen's Biology, where I developed a true passion for scientific research.

Cha Gheil !

John L. Wallace, Biology '79

Queen's University Biological Station – Recent Updates from QUBS

Greetings from QUBS! We have been working hard over the last 12 months to augment research and teaching usage of the Station, to enrich outreach programs at our Elbow Lake Environmental Education Centre (ELEEC) and to fund-raise to put us on a more sustainable financial footing. Our efforts have been rewarded. Thus far in 2014 we have seen dramatic increases in numbers of faculty and students conducting an ever-diverse array of research projects, a rise in undergraduate field course enrolment and increases in outreach activities including secondary school field trips, summer camps and workshops. Our network of NSERC-funded satellite-linked climate stations is almost complete – this will help push us to the forefront of research on the impact of a changing climate on local species and biotic communities. Our amazing 2014 undergraduate field course roster includes courses on fisheries & fish ecology, plant sex, acoustic communication in birds, amphibian & reptile ecology, insect ecology & taxonomy, applied ecology and environmental change in lake ecosystems.

I spent January and February in Australia touring national parks and field stations around Darwin and Cairns (for some missives from this trip see: opinicon.wordpress.com/), hoping to discover, “borrow” and implement new ideas in programming and outreach. I spent a month in China (May-June) touring, teaching a field course with Drs. Yuxiang Wang, Brian Cumming and Dan Lefebvre, giving lectures and meeting various officials from Tongji University and WWF Shanghai. The intent was to deepen the relationship between Queen's University and Chinese institutions and cement the Sino-Canada Network for Environment and Sustainable Development between Queen's and Tongji. QUBS is a central part of these initiatives.

Our ELEEC Manager, Carolyn Bonta, has done an amazing job of expanding our Education Centre outreach program, mapping trails, and upkeep of our new ELEEC infrastructure. Our Eco-Adventure Summer Camp will once again run in summer 2014 led by our dynamic Camp Co-Directors Kait Pasic and Kristina Silver and supported by donations to our Outreach and QUBS Camp Funds. The camp allows young people, aged 10 to 14, to swim, hike, canoe and engage in a host of activities geared toward enriching outdoor experience and increasing environmental awareness. Two generous donations to our QUBS Camp Fund have allowed us to sponsor campers and purchase a fleet of canoes for camp use.

We have added a new 45-hectare property to our land base that is to be called ‘Turid's Place’ after long-time QUBS friend Turid Forsyth, who sadly passed away in April 2014. This property links our Pangman Conservation Reserve, Hughson Tract and Bonwill Tract, and helps us to achieve our ultimate goal of a conserving a contiguous land-base for teaching, research, outreach, and biodiversity conservation.

Our QUBS Advisory Committee met for the first time in autumn 2013 and again in June 2013 helping us move forward on strategic vision and fund-raising for QUBS and ELEEC. To enhance QUBS and ELEEC programming, we continue to build our QUBS Endowment, efforts made increasingly important with the shifting landscape of government support.

Stephen Lougheed, Director, Queen's University Biological Station



Stephen Lougheed

QUBS website: queensu.ca/qubs

ELEEC website: elbowlakecentre.ca

QUBS blog: opinicon.wordpress.com

QUBS data repository: qubsdata.org

Twitter: @QUBS_Director

Obituaries

Marg Phelan: 1952 - 2012

We in the Biology Department, and especially those of us with links to QUBS, lost a valued member of our 'Queen's Family' since the last Biology newsletter was published. Marg Phelan passed away after a three-and-a half-year battle with cancer in June 2012. During that ordeal, Marg inspired everyone who knew her by the determination, courage and strength with which she fought this battle. And Frank, with his unflinching support throughout, certainly earned everyone's greatest respect.

For some 37 years, Marg was an important part of QUBS. While she worked in the kitchen for some twenty-one of those years, and was head cook for many of them, she was certainly more than 'just a cook' at QUBS. Virtually everyone who came to QUBS had contact with Marg. Since the kitchen is in the lodge, at the heart of QUBS, most people go to the kitchen first, and it was usually Marg who fielded the questions. "Where's Frank?" "Have you seen...?" "How do I...?" So while her work in the kitchen was important, her presence was much greater than that. She was something of an icon at QUBS, who met and greeted professors, grad students, undergrad researchers, TA's, field course students, weekend field trip students, Queen's administrators, service people, visitors, and friends. If she wasn't in the kitchen, and if Frank wasn't readily found, people went to Frank and Marg's house where Marg would still cheerily answer their myriad questions. So, in looking back over the entire time she spent at QUBS, I think that Marg's greatest contribution was that she willingly, indeed happily, lived nearly all of her married life of nearly 39 years at the Station. She and Frank moved to the Station in 1976, soon after Frank completed his M.Sc. and just two years after they got married. They raised their two boys there and she was still there recently when her grandchildren came to visit. The Station was home to Marg. She gardened there, she welcomed guests there and, like a home, she always had the best interests of the Station at heart.

Marg retired from her work in the kitchen after the summer of 2008. Steve Lougheed organized the making of a commemorative bronze plaque to acknowledge Marg's service to the Station. The plaque, which will hang in the lodge, was presented to her in their home.

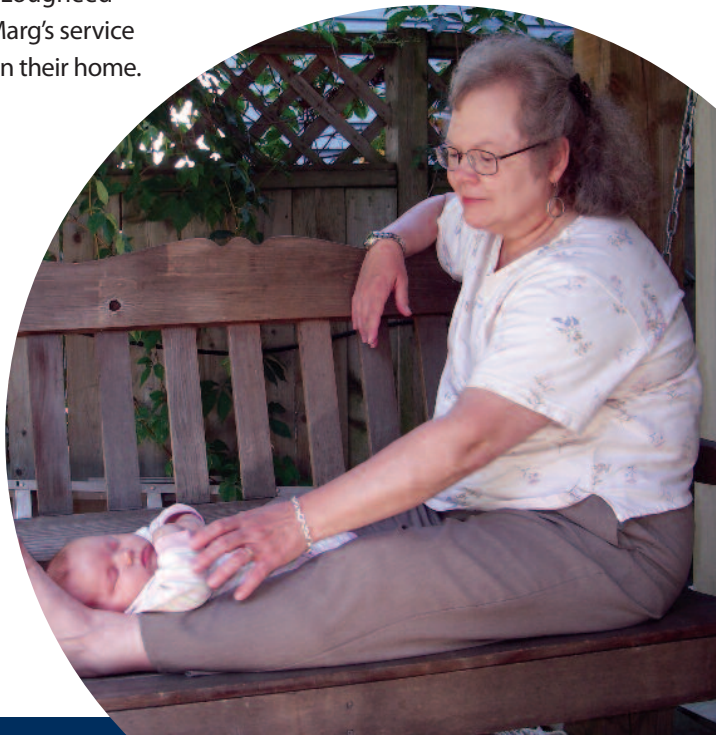
The plaque reads:

To Marg Phelan, for her contributions to the QUBS kitchen, 1987 - 2008.

WITH GRATITUDE
FROM COUNTLESS STUDENTS,
RESEARCHERS AND FRIENDS
WHO WERE NOURISHED BY HER FOOD
AND LIFTED BY HER LAUGHTER.

Indeed, we will all remember Marg for her laughter! On a Tuesday, as I hurried through the third floor of old Earl Hall, I was drawn to the collage of QUBS photos in one of the display cases. I was delighted to see a picture of Marg in the kitchen of the old lodge, a big smile on her face, working away. This is how many of us will remember Marg.

Raleigh J. Robertson (adapted for Newsletter from original obituary by RJR)





William Newcomb: 1943-2014

Professor William (Bill) Newcomb was born February 2, 1943. He grew up in New Haven, Connecticut, the son of a postal carrier, which instilled a life-long passion for stamps. Growing up in a home surrounded by gardens, Bill became an ardent plant naturalist. While at Queen's, he resided in Battersea, Ontario, a location that allowed him to fulfil his love of wood. He maintained a woodlot, cut his own trees, and prepared lumber for construction projects. When the new Bioscience building was constructed, Bill collected the trees that had been felled in construction, and milled the flooring that is in place in the Biology Head's conference room. A plaque commemorating his contributions to the room specifically and the department in general will be installed in his honour.

He began his academic life at the University of Connecticut (BA Zoology 1965, M.Sc. Botany 1969) then completed his PhD at the University of Saskatchewan (1972). After post-doctoral work at the University of Saskatchewan and Harvard University, he moved to the University of Guelph where he spent 3 years as a research associate and lecturer. He joined Queen's in 1978 as an Assistant Professor. Bill spent the next 35 years in the Department of Biology, working on the developmental processes that control microspore embryogenesis, an important breeding strategy in agriculture, the role of plant hormones and other metabolites in the development of nitrogen fixing root nodules. Throughout his career, he contributed his expertise in electron microscopy to collaborations with colleagues in the department and beyond.

Within the Department, Bill revealed a remarkable passion for mentoring undergraduate students. He served for many years as an Undergraduate Chair, Academic Advisor and member of the Board of Studies. He was particularly kind to students who faced unusual academic and personal circumstances, working with them to find ways to deal with the personal and academic hurdles. He left behind a collection of the many letters of gratitude that he had received over his years as an advisor.

Bill passed away June 5 in his home, leaving no immediate family. His friends and colleagues held a celebration of his life and contributions June 20 at the University Club.



This is the last edition of the Biology newsletter that will be edited by Bruce Tufts. During the past year, Bruce's Freshwater Fisheries Conservation Lab received a donation of 3.5 million dollars to support their research on conservation and sustainable use of Canada's freshwater fisheries over the next 10 years. Bruce is therefore stepping down as editor of the newsletter, so that he can focus more of his attention on his research efforts in this area. Further details on this initiative will be included in the next edition of the Biology Newsletter.

◀ **Students from the Freshwater Fisheries Conservation Lab at Queen's tagging a largemouth bass as part of the lab's ongoing research on bass populations in Lake Ontario.**

We're interested in YOUR feedback, your own experiences in our department, and your suggestions for what you would like to see in future issues of Queen's Biology. Please email the Newsletter Editor
Mel Robertson: robertrm@queensu.ca.

Supporting Biology and QUBS

As you have read in this newsletter, the Department of Biology is accomplishing exciting things and working hard to provide an excellent learning environment. We hope that you consider supporting one of the funding initiatives that enable us to continue the important work that we do. You can make your gift by visiting us online at givetoqueens.ca/biology or by contacting us at the phone numbers or email addresses below. We would be delighted to hear from you to discuss specific projects or ways you can support the department, either now or in the future.

Contact information: Current giving

Lisa Sykes: 613-533-6000 ext. 75646 or lisa.sykes@queensu.ca

Legacy giving (estates and bequests)

Faye Ransom: 1-800-267-7837 or faye.ransom@queensu.ca Please know that any communication about giving and estate planning will be held in the strictest of confidence.



DEPARTMENT OF
Biology

Faculty of Arts and Science
Queen's University
Kingston, Ontario K7L 3N6