Fall 2007

NEWSLETTER

Co-Editors: Ingrid Birker
Linda Cooper & Anthony Howell

Redpath Newsletter from the Director's Desk

By David M. Green

As the Redpath Museum continues to demonstrate, a university museum can play a central role in bringing science to the public. Even in this age of electronic access to wealth of information, the museum remains the one place where visitors can find the real thing. As always, the public program at the Redpath Museum is tremendously popular; this year we saw some 38,000 visitors drawn by the exhibits, workshops, lectures, seminars and other special Museum activities. But we need to remember that all of this is possible because of the research work done by Museum staff members behind the scenes.

Some people who don't know us well are still surprised that the Museum has active research labs, and a host of graduate students working in them, yet the basis for the Museum's position in the university lies in the strengths of the research programs it supports. The Redpath Museum currently has eight academic staff devoted to biodiversity research. Their studies range from evolutionary history to contemporary issues of ecosystem function, evolutionary mechanisms, biological invasions, and biodiversity conservation. Museum academic staff garnered over a million dollars in research grants and published 55 refereed publications in 2006 and the first half of 2007. (See p.10 of this Newsletter for a selective list). Thirty-eight graduate students pursued their studies in the Museum this past year, and seven of them graduated. There were also seven postdoctoral fellows and research associates in the Museum and 25 undergraduates doing research projects.

These research activities provide the material for the courses taught by the Museum faculty and supply the Museum with the academic credibility that allows it to create exhibits for the general public and maintain its vigorous public program. In this

way, the Redpath Museum lies squarely at the interface between the general public and the university community. That makes it unique, and something to be especially proud of.

Science News: T-PULSE

The Tomlinson Chair in Science Education, **Brian Alters**, opened a new science education research lab called the WOW Lab (https://www.mcgill.ca/wowlab).

This new initiative in elementary and high school level science education launched at McGill on Monday, September 17th, 2007, with a ceremony to thank the Imperial Oil Foundation for the generous founding donation of $800,000. **Siara Isaac** is the Project Manager for the WOW Lab Science Education R&D. She is located at 3700 McTavish Street, Room 355 and can be reached at 514-398-x2683 for more information.

The Tomlinson Project in University-Level Science Education (T-PULSE) has had a very busy summer and is involved in numerous initiatives. T-PULSE partnered with Teaching and Learning Services and the Office of the Chief Information Officer (**CIO**) to implement the new Student Response Systems (Clickers) across the Faculty of Science and within the University. This project is designed to increase student engagement in large introductory classes and to do so in ways that are appreciated and recognized by students as being supportive of their learning experience. **Karen Richardson** is the new T-PULSE/TLS Project Coordinator and **David Syncox** represents the T-PULSE on the implementation team. More information on this important project can be found by following this link: http://www.mcgill.ca/tls/projects/tpulse.

On August 28-31, T-PULSE hosted the bi-annual **Graduate Teaching Workshop** for science graduate students. **Siara Isaac** coordinated the six Tomlinson Graduate Teaching Fellows who led the workshops for "Faculty of Science graduate students" - 85 participants over four days. **David Syncox** and **Faygie Covens** coordinated and facilitated the function. The following week, the T-PULSE fellows were invited to teach another workshop at Macdonald Campus for 30 graduate students in the Faculty of Agriculture and Environmental Studies. **Professor Marcia Waterway**, who coordinated the workshop commented, “I sat in on the final wrap-up and it was wonderful to hear all the different ways in which the participants gained from the workshop.” Another Graduate Teaching Seminar was held later in September and the next installment is expected in the Winter of 2008. Check https://www.mcgill.ca/science/tpulse/seminar for updates.

Science Writing

By Linda Cooper

It’s been a busy time for Science Writing at the Redpath Museum.
To help young scientists write clearly about their research for both specialist and non-specialist readers, **Linda Cooper** gave talks this spring locally to McGill students and newly appointed professors in the Faculty of Science. Provincially, Linda participated in the summer school at Orford organized by Regroupement Québécois sur les Matériaux de Pointe (RQMP). This fall, Prof. Cooper will give a course on Writing Science Articles to graduate students and faculty at the University of Sherbrooke.

There’s also been international and even global interest in the issue of how scientists write their research papers. To reach a wide audience of scientists, the journal *Nature* asked Linda to write an article for their new journal *Nurture* “a short quarterly magazine sent to authors of *Nature* and of *Nature* sister and review journals … whose aim is to flag new developments offered by the whole of Nature Publishing Group to (their) collective.” Her article entitled “Can Science Writing Be Made More Accessible?” will appear this fall.

Linda has also been asked to blog on tips, observations, and discussions about writing in science that can be found at http://network.nature.com. Another invited blog entry is posted at LabLit.com a website "dedicated to real laboratory culture and to the portrayal and perceptions of that culture – science, scientists and labs – in fiction, the media and across popular culture." (Go to: http://lablit.com/article/251).

And finally, in addition to offering a new undergraduate course on Science Writing at McGill, this fall Linda will also give seminars on Writing, Editing, and Publishing in Science to graduate students in the NCCR-Frontiers in Genetics, Sciences III, at the University of Geneva.

Biodiversity Division

By Andrew Hendry

The pace of activity in the Biodiversity Division continues to accelerate. As always, our most important products are scientific papers published in peer-reviewed journals. We have been quite successful in this regard, contributing more than 20 papers since the last newsletter.

Writing papers requires long periods in front of the computer, but fortunately this task is balanced by data collection in the field – and here we have had our share of globe trotting. **Cristian Correa** collected native fishes in Chile. **Joey DiBattista** sampled lemon sharks in the Bahamas and Florida. **Ann McKellar** and **Andrew Hendry** gathered guppies in Trinidad. Ann, Andrew, and **Luis De Leon** watched finches in the Galapagos. **Erika Crispo** sampled cichlid fishes in Africa. **Jean-Sébastien Moore**, **Daniel Bernier**, and **Anne-Catherine Grandchamp** sampled stickleback fishes in British Columbia. Even the usually computer-bound **Xavier Thibert-Plante** got to do some "field work," with a trip to North Carolina for a workshop. In contrast, the often field-bound **Amy Schwartz** was fully dedicated to her experiments in the laboratory. As usual, Joey had the grandest adventures, ranging from saving Cuban refugees to bandaging up serious shark bites.

We have a number of exciting transitions to report. **Jean-Sébastien Moore** submitted his MSc thesis and will be starting a PhD at UBC in January. **Joost Raeymakers** completed his postdoctoral work on stickleback, and has moved on to another postdoctoral position – this one in Belgium. Undergraduate students who have finished their research projects, and now moved on to bigger and better things, include **Diana Sharpe** (MSc at McGill), **Jun-Woo Kim** (MSc at McGill), **Sharon Clemmensen** (internship), **Zaki Jafry**, and **Nicole Majorkeiwicz**. At the same time, we welcome a new technician (**Maryse Boisjoly**) and at least two new independent studies students (**Michael Roskies** and **Lari DeLaire**). **Laura Easty** has also returned to us from her travels in Africa.

Finally, our members recently received several major awards. **Diana Sharpe** received a *Natural Sciences and Engineering Research Council of Canada (NSERC)* MSc scholarship, was the top graduating student in Biology at McGill, and was elected to Sigma Xi. **Lari DeLaire** received an NSERC Undergraduate Summer Research Award. **Jean-Sébastien Moore** received an NSERC Canada Graduate Scholarship. **Andrew Hendry** received a new *NSERC Discovery Grant* and also an *NSERC Discovery Accelerator Grant*. According to NSERC, this last award provides "substantial and timely resources to a small group of outstanding researchers who have a well-established research program and who are at a key point in their careers." It was awarded to less than 1% of the NSERC applicants this year, including only four faculty members at McGill. **Andrew Hendry** was also elected to the council of the Canadian Society for Ecology and Evolution.

Invertebrate Zoology & Biological Invasions Division

By Anthony Ricciardi

Last month, Prof. **Anthony Ricciardi** gave interviews to CBC Radio in St. John's, Quebec City, Montreal, Toronto, Winnipeg, Edmonton, Whitehorse, and Vancouver. He spoke about the broad impact of invasive species on Canada's natural resources. In May, he gave the annual public lecture of the Canadian Society of Zoologists conference in Montreal. The lecture, sponsored by the Zoological Education Trust, was titled "*The globalization of wildlife: How introduced animals change ecosystems.*"

Three of Prof. Ricciardi's students recently graduated with their MSc. degrees: **Anneli Jokela**, **Katie Harper** and **Sarah Wilson**. Anneli has gone to Queen's University to pursue her doctorate, Katie is considering the option of working in Europe, and Sarah is spending a year touring South America.

A new MSc candidate, **Kathleen Church** has joined the Ricciardi lab. She will investigate how aquatic invasive species create conditions that may facilitate further invasions, a phenomenon called "invasional meltdown". Her research is funded through the Canadian Aquatic Invasive Species Network – a federally-funded group of university and government researchers across the country that was formed in an unprecedented effort to study the problem of invasions in Canadian inland waters.

Several students in the Ricciardi lab received awards this past year. **Rebekah Kipp** and **Jessica Ward** both received prestigious Canada Graduate Scholarships. Jess is also one of the recipients of the *Dr. and Mrs. Milton Leong Graduate Student Award*. Rebekah has been working as a research assistant in the Ricciardi lab under contract with the U.S. National Oceanic & Atmospheric Administration to develop a database for aquatic invasive species in the Great Lakes. She will be starting her MSc studies in the lab in January. PhD student **Lisa Jones** was awarded a two-year research scholarship from the Department of Fisheries and Oceans to pursue research on predicting invasive aquatic animals from their life history traits. PhD student **Åsa Kestrup** was awarded a grant from the Längmanska Kulturfonden, a private foundation in Sweden.

This summer, the Ricciardi lab benefited from having two enthusiastic NSERC-funded research assistants, **Sandra Warren** and **Deborah Lightman**. Deborah is also the first recipient of the Redpath Museum's Summer Research Internship. Both students have chosen to remain in the lab to pursue their B.Sc. Honour's projects, which involve investigations of larval settlement and survivorhip of two invasive Eurasian mussels, the zebra mussel and its cousin the quagga mussel, in the St. Lawrence River.

Prof. Ricciardi and two of his PhD students, **Jessica Ward** and **Åsa Kestrup,** will present their work at the Aquatic Invasive Species Conference in Nijmegen, the Netherlands, in September. Åsa will speak about the interactions between invasive and native crustaceans in the St. Lawrence River. Jess was awarded the Denise Alison Graduate Student Development Award to attend the conference and will speak about the effects of zebra mussels on freshwater invertebrate communities.

Zoology & Paleontology News

By Virginie Millien

Research

During the winter, **Helen Bovy** completed an Independent Studies on the subject of gigantism in fossil rodents. Virginie presented some of the results at the annual meeting of the Canadian Society of Zoologists in May 2007.

The summer was extremely busy and fruitful with a first field trip to collect small mammals (rodents and insectivores) from two localities in Quebec (Schefferville and Mont-Saint-Hilaire). This is the start of what we hope will be a long-term survey of small mammals in Quebec; the newly acquired specimens will be accessioned into the Redpath Museum collection. The specimens collected this year will be compared to specimens from the Redpath Museum collections that were collected from the same localities in the years 1959-1961. This is a great opportunity to monitor geographic and temporal variation in the context of climate warming over the last half century.

Kanako Hasegawa actively participated in the field survey, preparation of specimens, and some data analyses for her Independent Studies. Other parties also joined the team in Mont-Saint-Hilaire for a shorter period of time, including **Florin Feneru**, **Benoit Hamel**, **Louise**, **Helen Bovy** and **Katharine Corriveau**.

In March 2007, Virginie was invited to present her research at the Université du Québec a Trois Rivière. Virginie also had the opportunity to publish a reply to a published comment on her paper on rapid evolution on islands published last year in *PloS* Biology.

Collections

Florin Feneru started to work as a zoology curatorial technician in March 2007. During his time at the Redpath Museum, he completed an inventory of the Carpenter shell collection (nearly 5500 lots representing more than half of all the collection of mollusks). Florin is leaving for the UK this month. Meanwhile, we welcome **Anthony Howell** who just joined the staff of the Museum as our new zoology technician.

Two Vanier CEGEP students worked on inventories of the zoology collections in January and February 2007. **Amanda Hamelin** did an amazing job with the mammal collection, and an excel version of the mammal catalogue is now available online! **Emanuele Diadelfo** completed the inventory of the bird collection of study skins, and we hope to post the bird catalogue on the Redpath Museum web site very soon.

Again this year, a team of six volunteers from the *Société de Paléontologie du Québec* (SPQ) spent one week during the summer on the paleontology collection. They cross-checked the computer inventory of the vertebrate fossil collections. There is still much more work but the SPQ members have enough enthusiasm for the whole collection. The Redpath Museum also had invaluable help in other divisions from a team of volunteers including **Peter Tarassoff** (mineralogy), **Anthony Howell, Kanako Hasegawa and Lucasz Kozinski** (zoology), **Alexandre Jean** (exhibit): thank you to all our volunteers!

The Zoology division acquired a new donation of shells from the Caribbean sorted by **Anthony Howell**. A large part of these shells have been transferred to the public program. The paleontology division acquired a small suite of invertebrate fossils from the North West Territories. As well, a most notable donation came this year in the form of an original letter signed by Darwin. We will launch a new exhibit to present this letter at the next Darwin Day, in February 2008.

Between January 2007 and today, a total of 99 specimens from the Redpath Museum collections have been sent on loan for research or teaching purposes and in May 2007, we created a new exhibit case honouring some of the hidden treasures and behind-the-scene activities at the Redpath Museum.

Palaeontology Division

By Hans Larsson

Fieldwork

Fieldwork this summer season took place in Saskatchewan and Nunavut. The Saskatchewan work was in May and in conjunction with Larsson's field course (BIOL 573). The course this year was filled to capacity with 15 students and was the first formal foray for palaeontological work in Grasslands National Park – one of Canada's newest National Parks covering about 600 square kilometres with free range bison! That expedition located and mapped 116 fossil localities and presented this information to the Park office. We are now developing a policy that will enable us to return to the Park annually for research and teaching each May.

Some of the Saskatchewan field crew sitting around an excavation of a *Triceratops* eye horn. The horn is immediately to the right of the hammer.

July was spent in an unseasonably warm Arctic on Bylot Island. In between zipping around in Twin Otters and helicopters, Larsson's team recovered about four new (?) species of sharks and fragments of plesiosaur and mosasaur marine reptiles, birds, turtles, and dinosaurs. This data is now enough to begin a community-level reconstruction for the highest latitude Late Cretaceous terrestrial community. Apart from fossil treasures, Larsson was also approached by the Polar Continental Shelf Project (the federal government arm that funds air time and logistical support for Canadian Arctic research) to be on their scientific review board.

Upcoming fieldwork may see the Larsson lab working in Panama and northern South America. A collaboration has begun with **Carlos Jaramillo** of the Smithsonian Tropical Research Institute in Panama to begin jointly supervising students to work on the rich fossil localities in that region. **Matthew Vavrek** will even spend up to four months working in that region beginning this January.

Lab work

The Redpath Museum wet lab, located in the Stewart biology building, now has a new occupant. **Gemma de Martino** has begun a part-time research Associateship in the lab to expand the molecular work done on bird limb and tail development. Her arrival is timely and promises much advance on the molecular front in the lab. **Chantal Montreuil** is busily preparing the final pieces to a “teenager” sized *Triceratops* recovered from Saskatchewan during the last two field seasons. Negotiations have begun to keep this specimen at Redpath for some years and for us to develop Redpath's first real fossil dinosaur display, ever! **Don Lawrence** has finished preparing a delicate and incredibly detailed palaeoniscoid fish from Nova Scotia. He continues work on early reptile fossils recovered from Niger in 2003.

Research

Bob Carroll has finished a massive work on the origin of amphibians, published in the Zoological Journal of the Linnaean Society. This work may become his opus on the topic after decades of experience and supporting publications. **Karen Samonds** has finalized an official Accord de Collaboration between the Redpath Museum and *the Département de Paléontologie et Anthropologie Biologique, Université d’Antananarivo*, in Madagascar. This Accord is actually the first between the University in Madagascar and any Canadian University, and there was a lot of enthusiasm and support. She plans to lead another palaeontological

field expedition there in 2008. **Virginie Millien** has completed a promising interview for the position of Assistant Professorship at the Museum. She will maintain her curatorial overhaul of the museum collections, but now at the capacity of an academic position with graduate students and a research program. **Hans Larsson** has just had a set of book chapters published dealing with the evolution and development of the fin to limb transition and palatal kinesis in *T. rex*. Palaeontology students in the lab have been extremely productive this year. For a review, in no particular order, **Matthew Vavrek** has assembled enough data and methodology to assess beta diversity for the dinosaurs of Late Cretaceous North America. Surprisingly there turns out to be low beta diversity which means that most regions of the continent probably has the same species roaming all over. **Erin Maxwell** has completed a series of publications documenting the sequence of bone development in a wide variety of birds and is nearing completion of her doctoral thesis. Nadia has also completed a series of papers on amphibian limb development and should be finished her doctoral thesis in the coming months. **Alex Dececchi** has a manuscript under consideration in *Science* that presents a novel method using morphological evolutionary clock models to document the absolute of evolutionary change in theropod dinosaurs. **Luke Harrison** completed a new method to assess evolutionary change in temporal sequences (like events in animal development). He has now applied for transfer to a PhD program to begin work on gene regulatory network evolution of the fin to limb transition. **Rui Tahara** is back from Japan and continues her work on dinosaur cranial pneumaticity using 3D reconstruction software with CT scan data. **Trond Sigurdsen** is past the halfway mark for his thesis and plans to visit museums in the US to complete his work. And **Maria de Boef** will be visiting Harvard University for the rest of the year to expand her thesis. This expansion will include experiments in biomechanics to look at how functional repertoires of animals affect their bone microstructure. So, all in all, the research of the Palaeontology Division is creating a level of research that I think even Dawson would be proud of and impressed with.

Herpetology & Ichthyology News

By Sara Lourie

After spending March in Kenya/Tanzania with McGill's African Field Studies program, **Prof. David Green** attended the annual spring assessment meeting of Committee on the Status of Endangered Wildlife in Canada (COSEWIC) near Québec City. In May and early June he completed the 20th consecutive year of his long-term study of Fowler's toads at Long Point, Ontario, this time with Work Study student, **Nicole Sanderson**, and student volunteers **Natalie Earl, Linnaea Fyles, Camille Longue** and **Vince Spinelli**. Supported by the Canadian Wildlife Service, Nicole spent most of the summer at Long Point, radio-tracking toads, assessing habitat use and determining if it is *Critical Habitat*, as defined under the Species at Risk Act. Fowler's toad is a Threatened species in Canada.

Dr. Green attended the Joint Meeting of Ichthyologists and Herpetologists in St. Louis in July. He presented a paper on post-glacial dispersal of the Wood frog in North America, from the MSc thesis of his recently graduated student and co-author, **Julie Lee-Yaw**, and a poster co-authored with another of his recently graduated students, **Shavonne Meyer**, on the landscape genetics of Wood frogs and Red-backed salamanders. He also prepared for and promoted the 2008 meeting of Ichthyologists and Herpetologists, to be held here in Montréal next July. Prof. Green is the host of the meeting and chair of the local committee. If you are interested in volunteering in any capacity during the meeting, please contact us. Later this month, the entire Green lab will attend the Canadian Association for Herpetologists Meeting in Kingston, Ontario.

With the new academic year we welcome **Jay Ploss** to work on habitat mapping, specifically focusing on Spring salamanders in Québec, and coordinate Canadian data for a new 'Atlas of North American Amphibians' co-authored by Prof. Green and colleagues in the United States. **Marie-Pier Prairie**, studying amphibian recruitment, monitored 24 ponds for 16 weeks and estimated the occurrence and density of eggs, tadpoles and metamorphs of 4 amphibian species. **Jean-Sebastien Roy** working on hybridization between American toads and Canadian toads, spent a month in Manitoba collecting 140 toads and 100 tadpoles from within the hybrid zone. **Anne-Marie Catudal** is comparing the morphology of the sampled specimens and Jean-Sebastien is comparing their DNA sequences. **Vanessa Kilburn**, working on chytrid fungus infections of amphibians in Panama, is busy doing randomization tests and writing up her MSc thesis. **Katherine Velghe** experimented on Woodfrog tadpole density and survival.

Straddling herps and fishes, **Sara Lourie** georeferenced over 550 collecting localities across Canada for the HerpNET project (www.herpnet.org). She provided input into a new seahorse information portal (www.hippocampusinfo.org), published papers on seahorse taxonomy and Marine Ecoregions of the World (www.worldwildlife.org/MEOW) and is developing a new undergraduate course with **Karen Samonds** on 'Science and Natural History Collections' (to be offered in January 2008). **Mikelle Manniste** volunteered in the collections checking specimens and labels and **Aurelie Consandey-Godin** helped to develop a georeferencing protocol for seahorses.

Ethnology Collections

By Barbara Lawson

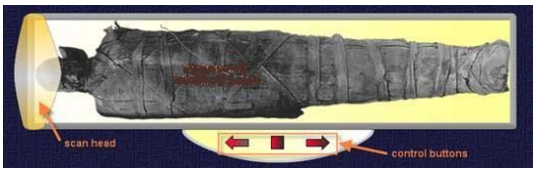

Exhibit: The interactive Egyptian mummy computer exhibit has been completed and is now installed in the Ethnology gallery. It has been in operation since mid-August and has attracted much attention from visitors of all ages. It presents a wealth of information using flash animations and is divided into the following seven sections: Timeline of Ancient Egypt, Map of Major Archeological Sites, Daily Life of Ancient Egyptians, Deities, Mummification, Redpath Mummies, and CT Scan of a Redpath Mummy. It is totally bi-lingual and is quite wonderful. **Barbara Lawson** has been working on it for the past two years with **Zheng Pan**, who developed the technical aspects for his McGill Computer Science Masters thesis entitled "The Design of an Interactive Multimedia Application for the Redpath Museum Mummy Exhibit".

Research: Barbara Lawson discovered seven cylinder sound recordings that were made in 1905 by Dr. J. L. Todd in the Congo Free State (now the Democratic Republic Congo). Todd donated an important collection of over 500 artefacts collected from the Congo and Gambia at the beginning of the twentieth century to the Redpath Museum. This collection and their African context is part of a continuing study by Lawson. The cylinders identified by Lawson are held in the British Library Sound Archive; their context had been completely unknown. The Library had an unidentified "Todd" as the source of the recordings and had mistakenly catalogued them as being from Mozambique. The 100 year-old recordings are of drumming and may possibly be of drums collected by Todd and now in the Redpath collection. Lawson was also able to provide the Sound Archive with the exact date and place that the cylinders were recorded.

A rather odd-looking pottery jug that had been in the unidentified drawer of the Ethnology collection for decades was found to be a rare and prized "face jug" or "ugly jug" made by an African or African-American potter in the Edgefield District of South Carolina during the period 1850–1870. Lawson identified the Redpath jug as being of possible interest when she saw some similar examples depicted in a small un-captioned photo in an old pamphlet about the Charleston Museum and its historic houses. She wrote to the curator of the McKissick Museum at the University of South Carolina who responded to the inquiry with a "Wow!" and confirmed the jug's provenience and date of manufacture.

The rare and prized "face jug" or "ugly jug" found at the Redpath Museum.

In Memoriam: Eléni Zoïtopoúlou, long time friend and Honorary Curator of Graeco-Roman Lamps and Terracottas at the Redpath Museum since July 2004,passed away on August 2nd after a year-long battle with illness. She is survived by her husband Professor John Fossey, and daughter Pauline.

MUSEUM COMMITTEES:
The following Museum Committees were struck in December 2006.
Safety Committee:Tony Ricciardi (Chair), Joan Kaylor & Marie La Ricca
Curriculum Committee: All academics except Hans Larsson.
Space Committee: Everyone except Brian Alters & Ingrid Birker
Exhibit Committee: Ingrid Birker, Claire de Mazancourt (Chair), Barbara Lawson, Virginie Millien & Anthony Howell.
Collections Committee: Virginie Millien (Chair), Barbara Lawson (Co-Chair) & Hans Larsson.
Outreach: Ingrid Birker
Promotion & Tenure Committee: Brian Alters, Robert Carroll, David Green, Graham Bell & Don Kramer and in 2007 another
Publications Committee: Ingrid Birker, Linda Cooper & Anthony Howell.

PUBLICATIONS:
Publications by Museum staff and students in 2007 included:

Aldred, Birker & Van Fossen. *Tea and fossils— a brief history of the Redpath Museum.*
Carroll. The Palaeozoic ancestry of salamanders, frogs, and caecilians. *Zoological Journal of the Linnean Society*, *150:* 1-140**.**
Carroll & Holmes. Evolution of the appendicular skeleton of amphibians. In B. K. Hall (Ed.): *Fins into Limbs*. University of Chicago Press. pp. 185-224.
Carroll. Amniote Paleobiology: Perspectives on the evolution of mammals, birds, and reptiles. *Integrative and Comparative Biology*,1-2. (Book Review).
Crispo, E. (In press). The Baldwin effect and genetic assimilation: revisiting two mechanisms of evolutionary change mediated by phenotypic plasticity. Evolution.
Correa & Gross. (In press). Chinook salmon (Oncorhynchus tshawytscha) invade South America. Biological Invasions.
de Boef & Larsson. Bone microstructure: quantifying bone vascular orientation. *Canadian Journal of Zoology 85*:63-70.
DiBattista. (In press). Patterns of genetic variation in anthropogenically impacted populations. Conservation Genetics.
DiBattista, Feldheim, Gruber & Hendry. When bigger is not better: selection against large size, high condition, and fast growth in juvenile lemon sharks. *Journal of Evolutionary Biology 20*:201-212**.**
Foster, Podos & Hendry. (In press). A geometric morphometric appraisal of beak

shape in Darwin's finches. *Journal of Evolutionary Biology.*
Fröbisch, Carroll, & Schoch. Limb ossification in the Paleozoic branchiosaurid *Apateon* (Temnospondyli) and the early evolution of preaxial dominance in tetrapod limb development. *Evolution & Development, 9:* 69-75.
Huber, De Leon, Hendry, Bermingham & Podos. Reproductive isolation of sympatric morphs in a population of Darwin's finches. *Proceedings of the Royal Society B. Biological Sciences 274*:1709-1714.
Jenkins, Walsh, & Carroll. Anatomy of Eocaecilia micropodia, a limbed gymnophionan of the Early Jurassic. *Bulletin of the Museum of Comparative Zoology Harvard 158*:1-81
Karim, Gordon, Schwartz & Hendry. This is not déjà vu all over again: male guppy colour in a new experimental introduction. *Journal of Evolutionary Biology 20*:1339-1350.
Larsson & Sues. Cranial osteology and phylogenetic relationships of *Hamadasuchus rebouli* from the Cretaceous of Morocco. *Zoological Journal of the Linnaean Society, 95*.
Larsson. MODES of Developmental Evolution: origin and definition of the autopodium. In J.S. Anderson & H.-D. Sues (Eds.), *Major Transitions in Vertebrate Evolution*. Indiana University Press.
Lawson. (In press) Collecting Cultures: Canadian Missionaries, Pacific Islanders and Museums. In Missions: Real and Imagined, (provisional title) A. Austin and J. Scott (Eds.), University of Toronto Press.
Lawson. (In press) Review essay: Academic anthropology and the museum. Edited by Mary Bouquet, *Anthropologica, 44* (2).
Maxwell & Larsson. The osteology and myology of the wing of the *Emu* (Dromaius novaehollandiae), and its bearing on the evolution of vestigial structures. *Journal of Morphology. 57.*
Millien (2006). Mammalian evolution is accelerated on islands. PloS Biology, 4(10): e321. DOI: 10.1371/journal.pbio.0040321.
Millien, Lyons, Olson, Smith, Wilson, & Yom-Tov. (2006) Ecotypic variation in the context of global climate change: revisiting the rules. *Ecology Letters, 9*: 853–869.
Moore, Gow, Taylor & Hendry. Quantifying the constraining influence of gene flow on adaptive divergence in the lake-stream threespine stickleback system. in *Evolution* 61:2015-2026.
Olofsson, de Mazancourt & Crawley. Contrasting effects of herbivore exclusion on N availability and primary production at different time-scales. *Oecologia, 150*: 582-589
Ricciardi. The invasiveness of an introduced species does not predict its impact. *Biological Invasions 9*: 309-315.
Ricciardi. Are modern biological invasions an unprecedented form of global change? *Conservation Biology, 21*: 329-336
Schwartz & Hendry. A test for the parallel co-evolution of male colour and female preference in Trinidadian guppies. *Evolutionary Ecology Research, 9*:71-90.
Wagner & Larsson. Fins/Limbs in the Study of Evolutionary Novelties. In B.K. Hall (Ed.), *Fins into Limbs: Evolution, Development, and Transformation* (pp.49-61), University of Chicago Press.
Ward & Ricciardi. Impacts of *Dreissena* invasions on benthic macroinvertebrate communities: A meta-analysis. *Diversity and Distributions, 13*: 155-165.

For more information on the Museum's research programs and a complete list of publications visit our website at **www.mcgill.ca/redpath**