

CIEE Newsletter: January 2014

Greetings and welcome to the January 2014 Newsletter for the Canadian Institute of Ecology and Evolution (CIEE). There's been a lot of activity during the past six months so we wanted to update you on our recent efforts. In addition, we have a number of exciting upcoming initiatives to tell you about, including three new Thematic Working Groups, several graduate workshops, and the development of the CIEE College of Representatives. This newsletter provides lots of additional information on all these topics, but please let us know if we can provide you with more detail – just email us at ciee-icee@uregina.ca.

The CIEE Newsletter is published twice a year and seeks to supplement our website information (www.ciee-icee.ca).

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*Canadian Institute of Ecology and Evolution:
Accelerating scientific progress through programs that synthesize and mobilize research.*

1. New CIEE Scientific Programs

1.1. Thematic Programs (Working Groups).

We are pleased to report that three new Thematic Working group proposals have been selected for funding by CIEE, including:

1. **“Canada’s phylogenetic diversity in a changing world”**. Main applicants: Dr. Jana Vamosi and Dr. Jeremy Kerr. Awarded Grant \$12,200 CAD;
2. **“The *terra incognita* of community ecology: understanding continental-scale variation of ecological networks”**. Main applicants: Dr. Timothée Poisot, Pr. Dominique Gravel and Dr. Daniel Stouffer. Awarded Grant: \$14,400 CAD, and;
3. **“Forecasting groundfish biodiversity change in the Newfoundland shelf”**. Main applicants: Dr. Andrew Gonzalez, Dr. Fred Guichard, MSc. Patrick Thompson, and MSc. Eric Pedersen. Awarded Grant: \$6,120 CAD.

Congratulations to all the participants and please see our Appendix below for further details on each proposal!

We had a remarkable response to our Call for Proposals in July 2013 and received ten competitive applications ranging from across the entire country. Despite the timing of the Call in mid-summer, the quality of applications was exceptional!

The selection process was careful and comprehensive with each proposal receiving 5-6 independent reviews. We take this opportunity to extend especial thanks the members of CIEE’s Scientific Advisory Committee (SAC), including Marc Cadotte (U. Toronto), Jeffrey Hutchings (Dalhousie Univ), Sue Bertram (Carleton Univ.), Dennis Murray (Trent Univ.), Denis Réale (UQAM) and Bradley Anholt (U. Victoria) for their outstanding work in the review process.

In general, *scientific excellence* and *likelihood of success* were the main general criteria for evaluation, although consideration was also made for the degree to which proposals helped CIEE demonstrate broader benefits to Canada, fiscal responsibility, and benefits to sustaining member organizations. Specifically the criteria for evaluations were:

1. Project rationale: scientific significance of the questions (novel insights?), likelihood to advance understanding in Ecology, Evolution or Environmental issues, evidence of novel synthesis, evidence of benefit to Canadian environmental and economic well being
2. Project description: clarity of objectives, outcomes, work plan, meeting schedule.
3. Expertise of applicants and participants (from CVs/NSERC forms). This evaluation also evaluated evidence of participant diversity (institution, career stage, gender).
4. Potential for defined scientific products, including refereed publications.

5. Budget adequacy and feasibility (complete estimates and coherent justification).

Each reviewer provided written summaries of the relative merits of each proposal, and were asked to rank all proposals to each criterion on the same absolute scale (1-10). Relative rankings were synthesized to achieve a final recommendation for funding. After awarded applicants effectively responded to reviewers' feedbacks and addressed critical comments from the CIEE Director and Assistant Director, Funding Agreements between parts (CIEE and grantees) were developed. These formal agreements extensively describe rights and responsibilities by the parts, allowing a clear and organized use and control of funding.

We encourage you to participate in future CIEE programs. In this regard, we anticipate a new Call for Proposals to be issued during Fall of 2014. Details of upcoming programs and activities will be posted on our website www.ciee-icee.ca.

1.2. Training Workshop and Graduate Short Course.

In conjunction with McGill University, a sustaining member of CIEE, we will be funding a dedicated workshop on ecological applications of R statistics next spring. This workshop is being organized by Etienne Low-Décarie of McGill University and the "Montreal R User Group", and is intended as an introduction to the use of R for Eco-Evo scientists. The workshop will be offered in conjunction with the CSEE Genomes to/aux Biomes meeting in Montreal in late May 2014. By the end of the workshop, all users will be able to load their data into R, produce a beautiful plot and will be completely addicted to using their new R super powers. The workshop will consist of three 2-3 hours segments: 1) why R and getting started in R 2) getting data into R 3) plotting your data using ggplot2. The workshop focuses on hands on experience and there will be time to interact with your data with R. It is presented by the "Zero to R Hero" team. Priority will be given to attendees at the full-week R course described below. For registration, please visit <http://www.meetup.com/Montreal-R-User-Group/events/154614852/>

In addition, CIEE is planning to present a week-long intensive graduate course in R-based statistics to be offered by Dr. Gavin Simpson, principal programmer for the R Vegan package. This week-long course will be held in the new Synthesis Centre at the University of Regina, in August 2014. We anticipate that the workshop will follow the cost-sharing model used in our recent workshop on *Ecological Applications of Stable Isotope Technology*, hosted at CIEE headquarters within the Institute of Environmental Change and Society on the University of Regina Main Campus, in which tuition, food and lodging are provided by CIEE, while participants provide transportation costs.

2. College of Representatives

One of the major initiatives of the CIEE during the past six months has been the establishment of a College of Representatives to better develop membership and represent our Institute across the country. This college is distinct from our sustaining members who fund CIEE activities through annual membership fees and in-kind contributions. Instead, our objective with the College is to get formal representation of CIEE at every university in Canada. These individuals or small groups are responsible to promote the goals and activities of CIEE to local faculty and administrators.

The current CIEE's Representatives are:

Dr. Julia Baum, **University of Victoria**
Dr. Rolf Vinebrooke, **University of Alberta**
Dr. Leland Jackson, **University of Calgary**
Dr. Craig Willis, **University of Winnipeg**
Dr. Nusha Keyghobadi, **University of Western Ontario**
Dr. Patricia Chow-Fraser, **McMaster University**
Dr. Miriam H. Richards, **Brock University**
Dr. Hugh MacIsaac, **University of Windsor**
Dr. Charles Ramcharan, **Laurentian University**
Dr. Douglas W. Morris, **Lakehead University**
Dr. Chris Eckert, **Queen's University**
Dr. Beatrix Beisner and Dr. Yves Prairie, **Université du Québec à Montréal (UQAM)**
Dr. Jesse Shapiro, **Université de Montréal**
Dr. David Walsh, **Concordia University**
Dr. David Risk, **St. Francis Xavier University**
Dr. Paul Snelgrove, **Memorial University of Newfoundland**
Dr. Elizabeth Elle and Dr. Arne Mooers, **Simon Fraser University**
Dr. Mark Brigham, **University of Regina**
Dr. Donna J. Giberson, **University of Prince Edward Island**
Dr. Andrew M. Simons, **Carleton University**
Dr. Shannon McCauley and Dr. Marc Johnson, **University of Toronto, Mississauga**
Dr. Donald Jackson, **University of Toronto, St George Campus**
Dr. Rowan Barrett, **McGill University**
Dr. Don Stewart, **Acadia University**
Dr. Theresa Burg, **University of Lethbridge**
Dr. Robin Owen, **Mount Royal University**

If you recognize the importance of having a national centre for synthesis in ecology and evolution, and are interested in acting as the formal CIEE representative to your Institute, please let us know via our dedicated email address ciee-icee@uregina.ca. We would be delighted to provide you with more information.

3. Simon Fraser University, new sustaining CIEE Member.

CIEE is growing! We are pleased to announce that from January 2014 Simon Fraser University will be a sustaining member of CIEE.

Many thanks Dr. Arne Mooers and Dr. Elizabeth Elle to make it possible.

As you may know, CIEE achieves its mission principally through funding from, and co-operation among, a consortium of Canadian Universities and research institutions. At present, the sustaining membership includes **University of British Columbia, Carleton University, McGill University, University of Regina, University of Toronto, Simon Fraser University,** and the **Canadian Society for Ecology and Evolution (CSEE)**. Each member pays very reasonable annual membership fees assessed on a sliding scale according to their NSERC Discovery funding in ecology and evolution. Importantly, all of the funding obtained from member organizations is used for direct support of CIEE scientific programs, whereas in-kind contributions help maintain staff and synthesis facilities. Our agreement with the University of Regina also allows us to avoid overhead charges to member organizations, thereby focusing our resources on advancing evolutionary, ecological and environmental sciences. As a result, the more members we have, the more activities we can support!

If your institute is interested in becoming a CIEE Sustaining Member, please let us know and we would be happy to provide you with more information.

Through its membership, your institution will: 1) contribute to the scientific progress in ecology and evolution through programs that synthesize current knowledge and develop our future leaders; 2) facilitate access to CIEE's scientific programs for your faculty and highly qualified personnel; 3) receive priority consideration for CIEE initiatives and funding; 4) gain a seat on the management board that sets the mandate and direction of the CIEE, and; 5) play a pivotal role in shaping the future of ecology and evolution in Canada.

4. CIEE Synthesis Centre

We are convinced that provision of a centralized synthesis centre is essential to improving the overall productivity of CIEE working groups and training activities. In this regard, we have partnered with the Institute of Environmental Change and Society (IECS) and the University of Regina to develop the CIEE Synthesis Centre (see below). The CIEE Synthesis Centre includes:

- 800 sq ft synthesis room, featuring full internet connectivity,
- 200 sq ft breakout room,
- 8 stations computer centre (LINEX, with Windows emulation, and some Apple capabilities)
- Statistical expertise courtesy of Dr. Gavin Simpson, IECS' resident numerical ecologist and principal programmer for the R Vegan package.

In addition, UR provides rooms on campus at subsidized rates of \$30/day in new UofR residence towers, a per-meal food plan (pay-as-you-go), and access to the UR recreational centre at modest cost. Room service includes a private room, linen service, internet access, and other amenities.



CIEE scientific programs developed in the new Synthesis Centre at the University of Regina.

We encourage the use of these facilities for any CIEE Scientific Program, particularly those held during summer when the availability of housing and facilities is greater. Building on this initiative, CIEE hosted the Stable Isotope Ecology graduate course taught by Dr. Björn Wissel, which highlighted new and emerging uses of stable isotope analysis to follow whole ecosystem element cycling. CIEE was responsible for operational and administrative organization of this course, including course promotion, reception and selection of applicants, logistic and operations, and course evaluation. As noted above, CIEE used a shared model for funding the project, with room, board, instrumentation, and all course materials provided by CIEE, and travel provided by the students or their supervisors. Twelve graduate students were selected from a total of 40 applications. Final participants were selected from eleven universities across North America including Victoria, Waterloo, McGill, Lethbridge and Toronto among others. Based on the anonymous student evaluation, the course was highly successful, with course organization and administration among the most highly-rated aspects.

Several programmed commitments will take place in our Synthesis Centre during 2014. In addition to the week-long statistical course in R to be offered to CIEE member institutions and others, we will host one of the new CIEE's Thematic Working Groups to investigate *Canada's phylogenetic diversity in a changing world* in summer 2014. During the meeting, the working group will assess predictive species modeling and phylogenetic community ecology with the common goal of understanding how phylogenetic diversity is changing across Canada, while testing how evolutionary processes shape species' range responses to climate change. Finally, once instrumental installation is complete at the Institute of Environmental Change and Society (IECS), CIEE anticipates offering a week-long course in environmental 'Omics' (proteomics, genomics) conducted by IECS staff Scientists Dr. Tzu-Chiao Chao and other Canadian researchers.

Your input matters

As always, we are pleased to receive your questions, comments or concerns about CIEE. In particular, please let us know if you have an idea for a new member service or research activity.

Thank you all for your support!

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Dr. Diego F. Steinaker, Assistant Director
Canadian Institute of Ecology and Evolution, CIEE /
Institut canadien d'écologie et d'évolution, ICEE
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Many thanks to our sustaining Members for the continuing support:



APPENDIX

Awarded 2014 Thematic Programs (Abstracts)

1. “Canada’s phylogenetic diversity in a changing world”.

Main Organizers:

Dr. Jana Vamosi - University of Calgary

Dr. Jeremy Kerr – University of Ottawa

Other Working Group Members:

Steven Vamosi (U Calgary), Marc Cadotte (UTSC), Jonathan Davies (McGill), Arne Mooers (SFU), Simon Goring (Wisconsin), Felix Sperling (U Alberta), Amy Angert (Colorado State), Franz Feigl, Brian Starzomski (U Victoria), Steve Kembel (UQAM), Navi Garcha (SFU), and graduate students Laura Coristine (U Ottawa) and Cassandra Robillard (U Ottawa).

Summary

As climate change accelerates, Canada increasingly needs reliable predictions of how biological communities will respond. We propose a workshop that will assemble Canadian and international experts in predictive species modeling and phylogenetic community ecology with the common goal of understanding how phylogenetic diversity is changing across Canada while testing how evolutionary processes shape species’ range responses to climate change. These data will be paired with projections on how differing climate models could alter communities over the next 50 years. The tools are in place to perform initial climate change predictions in two well characterized interacting groups in Canada: butterflies of BC and their host plants. British Columbia provides a fertile testing ground to examine effects of climate change on changing distributions of plants and animals and the resulting changes this will have on Northern communities. We anticipate that the results of this initial project will be useful in elucidating important processes relevant to Canada’s boreal forest and arctic ecosystems and for developing new understanding of niche evolution.

Awarded Grant: \$12,200 CAD.

2. “The *terra incognita* of community ecology: understanding continental-scale variation of ecological networks”.

Main Organizers:

Dr. Timothée Poisot – Université du Québec à Rimouski

Pr. Dominique Gravel – Université du Québec à Rimouski
Dr. Daniel B. Stouffer – University of Canterbury (New Zealand)

Other Working Group Members:

Miguel Araujo, Benjamin Baiser, Spencer Woods, Marie-Josée Fortin, Shawn LeRoux, and graduate students Kévin Cazelles, Philippe Desjardins-Proulx, and Alyssa Cirtwill.

Summary

The movement of species following habitat destruction and environmental changes will likely result in entirely novel ecosystems. These will not be a simple translation of previously existing ones: new species will arrive and new interactions will occur. Since species interaction is backbone of several important ecological processes and services (stability, resistance to invasion, nutrient cycling, biomass production), it is a key challenge for community ecologists to predict the structure of novel ecosystems. Unfortunately, current methodologies are ill suited to achieve this goal. The objective of this working group is to develop a new generation of predictive tools, putting a formal statistical approach in service of an applied ecological question. The full working group will meet twice (to start the project, and in a final meeting), and there will be another meeting, with a reduced attendance, focused on implementation and release of software packages.

Awarded Grant: \$14,400 CAD.

3. “Forecasting groundfish biodiversity change in the Newfoundland shelf”.

Main Organizers:

Dr. Andrew Gonzalez - McGill University.
Dr. Fred Guichard - McGill University.
MSc. Patrick Thompson- McGill University.
MSc. Eric Pedersen- McGill University.

Other Working Group Members:

Pierre Pepin (Canadian Department of Fisheries and Oceans), Aaron Ball (McGill University), Marie- Josée Fortin (University of Toronto), Tarik Gouhier (Northeastern University, Massachusetts), Heike Link, (McGill University), Charlotte Moritz (UQAR), Hedvig Nenzén (UQAM), Ryan Stanley (Memorial University), Zofia Taranu (McGill University).

Summary

The objective of this working group is to identify spatial and temporal patterns of groundfish biodiversity in the Newfoundland shelf, that will be used to create predictive models of individual species dynamics and the 1990s groundfish collapse. This group will meet in three three-day meetings, at McGill University’s Gault Nature Reserve. These meetings will focus on the production of research papers and management documents for the Canadian Department of

Fisheries and Oceans (DFO) and the North Atlantic Fisheries Organization (NAFO), and interactive maps of marine biodiversity for public use. The working group leaders are proposing to use a thirty-five year DFO dataset of groundfish abundance on the Newfoundland shelf to test the benefits of including biodiversity metrics in forecasting groundfish population dynamics. Effective and efficient management of ecosystems requires detailed information on community baselines and spatiotemporal changes. Managers face a tradeoff when gathering data: collecting detailed data on the diversity of a region vs. increasing the spatial and temporal resolution for key species. Therefore, this group will focus on testing the relative usefulness of diversity measures versus single-species or abiotic factors for forecasting ecosystem services (eg. commercial fish harvest) and ecological regime shifts.

This project will be co-funded between the CIEE and the Quebec Centre for Biodiversity Science (QCBS). The CIEE Grant for this project is \$6,120 CAD.