Overview of Awards

Alexander Graham Bell Canada Graduate Scholarship
• Doctoral (CGSD): $35,000/year; 2 or 3 years

NSERC Postgraduate Scholarship
• Doctoral (PGSD): $21,000/year; 2 or 3 years

Other NSERC Awards:

Michael Smith Foreign Study Supplement
• Up to $6,000 for a period of research study abroad

Vanier Canada Graduate Scholarship: September 18 deadline
• Doctoral: $50,000/year; 3 years
• NOTE: If you accept a doctoral-level Tri-Agency scholarship (CGSD, PGSD), you become ineligible for a Vanier scholarship
Eligibility Criteria

- Canadian Citizen or Permanent Resident of Canada
- Have at least an A- average in last two years of full time study.
- As of December 31, must have completed between 0-24 months in a doctoral program (unless you have never been registered in a master’s level program, in which case the limit is between 4-36 months).
- Have not received any other Tri-Agency doctoral-level funding
- Research falls within the NSERC Mandate
- Are or will be registered in a full time Doctoral program
Application Process: How to Apply?

- Verify whether or not you should apply through U of A, or directly to NSERC by reviewing the Program Guide; there are separate deadlines in each scenario.
- Your application form (Form 201) must be prepared electronically.
- FGSR will upload copies of your transcripts to your application, following the FGSR Deadline.
- Important dates if applying through U of A:
  - Department Deadline: please contact your department for deadline and submission requirements
  - FGSR Deadline: October 16, 2017 (4:00pm)
NSERC Doctoral Application Process – Before October 16, 2017

Applicants

- Fill out the U of A University Designate in your application so that your transcripts can be attached to your application after the deadline

  First Name: Ling
  Last Name: Jiang
  Email: grad.awards@ualberta.ca

Departments submit

- An alphabetical list of their students who are applying for the NSERC doctoral competition. Students who apply to the competition but are not included on the department’s list will not be considered.

- Any required, up-to-date transcripts required by NSERC that are not already held at FGSR.
Doctoral Application Process –
After October 16, 2017

- After October 16, 2017, FGSR will upload copies of all required, up-to-date transcripts to your application.
- After this is done, your application status will change to “Complete”, and you can “Submit” your application online.
- FGSR will contact departments once all applications are complete (transcripts uploaded); they will be asked to notify their students to “Submit”.
- Failure to submit when directed by your department/FGSR may result in your application being marked ineligible.

Selection Process:
- FGSR Awards Services reviews all applications for eligibility and completeness.
- Graduate Scholarship Committee (GSC) selects the U of A quota of applications to be forwarded/nominated to NSERC for the national competition. Unsuccessful applicants at the U of A competition-level will be notified.
- FGSR Awards Services forwards successful applications to NSERC for the national competition on November 25, 2017.
- NSERC notifies forwarded nominees of results by the end of March.
Transcripts

- Up-to-date transcripts are defined as official transcripts dated or issued in the fall session of the year of application (if currently registered) or after the last term completed (if not currently registered).
  - This includes transcripts from institutions where you have not completed a degree and may have only taken a few courses.
- Official transcripts are defined as transcripts issued by the Registrar’s Office. Transcripts from other sources (websites, online student accounts) are not official.
- You do not need to provide up-to-date University of Alberta transcripts for this competition.
- If FGSR already has up-to-date and official transcripts on file for you, you do not need to resubmit them for this competition.
- Please contact grad.awards@ualberta.ca to confirm which transcripts FGSR has (include your Student ID number, name, and a list of transcripts you need us to verify).
Selection Criteria for PGSD/CGSD

**Academic excellence**
- Weight: 30%

**Research Ability or Potential**
- Weight: 50%

**Communication, interpersonal and leadership abilities**
- Weight: 20%
Other Important Elements of the Application

- Research Statement/ Proposed Research
- Letters of Appraisal
2018 NSERC: Research Statement

Dr. Ellen Macdonald, Professor & Department Chair
Department of Renewable Resources
Chair of the NSERC National Scholarships & Fellowships Committee (Ecology & Evolution)
General tips for success

• target your application

• find out about the adjudication process

• carefully follow timelines

• inform your references & proof-readers about these
General tips for success

• careful attention to detail

• clarity and conciseness

• don’t under-estimate the importance of formatting (for the free-form pages)
READ THE INSTRUCTIONS/GUIDELINES
Outline of Proposed Research Research (Attachment – One Page Maximum)

In the Outline of Proposed Research page of your application, provide the requested information according to the guidelines and format standards outlined in the NSERC Online Presentation and Attachment Standards.

Applicants must complete this section themselves.

Provide a detailed description of your proposed research project for the period during which you are to hold the award. Be as specific as possible. Provide background information to position your proposed research within the context of the current knowledge in the field. State the objectives and hypothesis, and outline the experimental or theoretical approach to be taken (citing literature pertinent to the proposal), and the methods and procedures to be used. State the significance of the proposed research to a field or fields in the natural sciences and engineering (NSE).

Your research must be part of an overall research program which lies in a field that NSERC supports. For awards held at universities, your research must be supervised by a faculty member whose own research program lies in a field that NSERC supports. In cases where the proposed research is deemed to fall within the mandate of either the Canadian Institutes of Health Research (CIHR) or the Social Sciences and Humanities Research Council (SSHRC), NSERC will not accept the application. If you have received previous funding from NSERC, this does not mean that you are automatically deemed eligible for continued NSERC funding. As you advance in your studies, if the focus of your research changes from the natural sciences and engineering to the health or social sciences and humanities areas, you may no longer be eligible for NSERC support. For important information about the eligible fields of research, refer to the Eligibility Criteria for Students and Fellows.

Note: Proposals that include the use of methodologies, tools, techniques and knowledge from the NSE are not automatically considered eligible for NSERC support. The proposed research must clearly be intended to advance knowledge in the NSE.

In addition:
Selection criteria

Academic excellence:

• academic record
• prior scholarships, awards, research grants
• letters of reference
Selection criteria

Research Ability or Potential:

- prior research accomplishments/outputs
- the Research Statement
- letters of reference
The Research Statement

- Addressing an important and interesting scientific question
- Clear and realistic plan for research within the time frame of the award/degree
- Understandable by a relatively broad audience of academics within your general disciplinary area
The research statement – must convince the reader that...

1. The applicant will be working on an issue that is important in a broad scientific context.

2. The applicant will be addressing clearly defined questions or hypotheses that are likely to advance knowledge about this issue.

3. The applicant has described the specific steps of the research plan in sufficient detail that it is clear they are likely to be successful in making a solid scientific contribution.

4. The resources at institution X are appropriate to enable them to succeed....
The Research Statement

• Hypothetical examples (based on successful applications)
Example 1

Paragraph 1 – explain the problem and scientific context

Understanding the effects of X on Y is important for practical and theoretical reasons. Two examples of concerns regarding the effects of X on Y (i.e., why we care). Three mechanisms through which X might influence Y. On these, #3 is the least well studied. Work in related fields suggests #3 might be the most important one but we still don’t know if this is true.
Paragraph 2 – explain the general experimental approach

I will use field experiments, laboratory analyses and modeling to test the hypothesis that mechanisms #3 explains the influence of X on Y. My research will address these specific questions: 1), 2), and 3). I will do this using test system B, which is particularly appropriate for the following reasons.

Paragraph 3 – more detailed research approach

At the heart of my dissertation is a series of experiments in which I will manipulate Q and examine effects on M and N. A pilot study verified that this approach will work. All the equipment/facilities I require are available in my supervisors lab. Concise details of the experimental design and data collection.
Paragraph 4 – solid outcomes of the research

The data collected will be analyzed in this way to address questions/hypotheses #1 and #2 above. They will further be used to parameterize some well-known model, which will allow me to predict whether these hypotheses will hold under future climates.

Paragraph 5 – bit-picture what will be accomplished

This research will make an important theoretical and practical contributions to my discipline (as explained in paragraph 1) and allow us to save the planet.
Example 2

Paragraph 1 – explain the problem and scientific context

Organism X relies on species A and B as a food source. Impacts on species A are devastating but we don’t know much about impacts on species B or even how important species B as a food source for organism X. What we do know, however, is this, this and this. On this basis I hypothesize that 1), 2), and 3). Through some very clever state-of-the-art science I will test these hypotheses.
Paragraph 2 – explain the general experimental approach

To test Hypothesis #1 I will do an experiment like this. This result would support my hypothesis. Using an experiment like this I can test for evidence of this, which would support Hypothesis #2. Finally, I will use these super-sophisticated state-of-the-art lab methods (which I have explained without the use of ridiculous acronyms) to determine whether this or this happens. The former would support Hypothesis #3 while the latter would suggest that this other really cool thing is important, pointing towards future exciting research.
Paragraph 3 – why we care

The proposed research will improve our understanding of the importance of species B as a food source for Organism X improving our fundamental knowledge of the ecology of Organism X. More importantly, the results will provide knowledge upon which to base approaches to reduce the devastating impact of Organism X on species A.
The research statement should clearly explain your specific research within the context of the discipline using very clear argument structures, across paragraphs, within paragraphs, and within a given sentence.

Make it easy for the reviewer to understand and appreciate the validity, importance, and innovation of the research.
Selection criteria

Communication, Interpersonal & Leadership:

• the entire application package
• awards (leadership or communication)
• the Research Statement
• other academic and extra-curricular activities and accomplishments
• letters of reference
Communication, Interpersonal & Leadership:

• important for you to stand out from the crowd
• evidence of innovation, independence
• engagement with the broader scientific community
• activities and accomplishments outside your specific program
• extra curricular

The investment is in you, not in your supervisor, or in your research area or topic.
Research productivity


Caner, R.T. S.E. Macdonald, R.J. Balland, Bryophyte assemblage structure after partial harvesting in boreal mixedwood forest depends on residual canopy abundance and composition. Forest Ecology & Management

Crisfield, V., S.E. Macdonald, J. Gould, Effects of recreational traffic on alpine plant communities in the northern Canadian Rockies. Arctic, Antarctic, and Alpine Research


Macdonald, S.E., S. Quideau and S. Landhäusser, Rebuilding boreal forest ecosystems after industrial disturbance. (Book Chapter) In Restoration and reclamation of boreal ecosystems. Edited by Dale Vitt and Jag Bhatta. Cambridge University Press, (in press)


Articles in Refereed Scientific Journals: (supervised graduate students in bold)


**Book Chapter:**


**Manuscripts Submitted:**


**Invited Talks:**

We will utilize thinning trials conducted in lodgepole pine or lodgepole pine—spruce stands by Millar-Western Forest Industries (also being used by M. Reid). In the first year 4 commercial thinned stands and 4 salvage thinned stands will be sampled and compared to unthinned stands of appropriate composition and density which are scheduled for future thinning. These stands can then serve as the controls initially and also as the pre-thinning control for monitoring in subsequent years. In each stand 20 permanent sampling points will be established in a stratified random fashion (stratified by residual density). Sampling is described below.

Canopy composition and productivity will be assessed in 3.99 m circular plots centered at each sampling point. Tree density to species and snag density will be counted in each plot: two representative trees per plot will be cored for assessment of recent diameter growth. Each tree and snag in the plot will be placed in a diameter size class. Each tree will be permanently tagged for monitoring of mortality. Canopy cover will be quantified using a convex spherical densiometer. In addition, for thinned stands the relative basal area of each tree species will be quantified using stratified random samples along transects through each stand (Leach & Givnish 1999). Cover of understory vascular plants (to species) will be assessed in 1.78 m circular plots centered at each sampling point. In these sample plots shrub stem density and sapling density (to species) will be counted and height will be determined for each sapling and shrub species to assess vertical stratification (see Halpern et al. 1999). Downed coarse woody material will be quantified using a line intercept method (8 m long segments bisecting the tree plot). For each piece encountered the diameter at the intersect point and at the base, and length, will be measured, and decay class recorded. Sampling of downed coarse woody material will also be done to provide a baseline for determination of decomposition rates over the long term. Samples of permanently tagged logs will be taken for mass-density, and nitrogen, phosphorous, and carbon analysis. In addition, fresh logs which were placed in thinned (and unthinned control) stands in 1996 by M. Reid will be re-sampled to assess the impact of thinning on decomposition.

Spot measurements of soil moisture will be made several times during the growing season using time domain reflectometry. Nutrient availability will be assessed using resin bags incubated at each sample location for the entire growing season. Light will be quantified through the analysis of hemispherical photographs, using HEMIPHOT software (ter Steege 1993). Pictures will be taken at different heights above ground level to compare light received by different vegetation layers. We will also calculate the gap light index (GLI), which calculates the contribution of a gap to the light regime of any given point in the understory (Canham et al. 1990), and beam enrichment (Canham et al. 1994).

Background: Reduction of stand density through thinning or other treatments will likely result in an increase in mineral nutrients, water and light availability for the forest understory vegetation (1, 2). Relationships between the amount of canopy openness, the spatial distribution of forest gaps induced by selective thinning or, at the other extreme, dispersed vs. aggregated Green-Tree Retention patterns (3) and the abundance and diversity of understory vegetation are still controversial and complex.

Objectives: This proposal will examine the effects of commercial thinning and understory retention on forest structure, composition, and understory plant biodiversity in the western boreal forest. Specific objectives are to:

- evaluate the role of changes in above- (light) versus below- (water, nutrients) ground resources on composition and diversity of understory plants;
- assess the influence of the treatments on forest dynamics and structure (mortality, recruitment and evolution of coarse woody material; development of understory trees, shrubs and non-woody plants);

Methods: Experimental design: Cover of understory vascular plants (to species) will be assessed in 1.78 m circular plots centered at each sampling point. In these sample plots shrub stem density and sapling density (to species) will be counted and height will be determined for each sapling and shrub species to assess vertical stratification (4). Downed coarse woody material will be quantified using a line intercept method (8 m long segments bisecting the tree plot).

Field sampling: Spot measurements of soil moisture will be made several times during the growing season using time domain reflectometry. Nutrient availability will be assessed using resin bags incubated at each sample location for the entire growing season. Light will be quantified through the analysis of hemispherical photographs, using HEMI/HOT software (5). Pictures will be taken at different heights above ground level to compare light received by different vegetation layers.

Analysis: Poisson regression and Analysis of variance will be used to compare treated stands to the appropriate control for the following parameters: tree density, basal area and volume, tree growth, canopy cover, rates of mortality, snag density, coarse woody material density and volume, shrub and sapling stem density and height, understory species richness, evenness and dominance (6, 7), understory cover by vegetation class (herbs, graminoids, shrubs, prostrate shrubs), light, soil moisture and nutrient availability. Richness will be examined at two scales: average number of species in each stand type (treated vs untreated), mean number of species per plot.

Significance: The work will provide a comprehensive understanding of the influence of these intensive forest management treatments on understory plant diversity and on forest structure and composition, as relevant to wildlife habitat quality. It will provide forest managers with data sets on which to base management decision, and with which to predict the future development of sites subjected to these management treatments.

2018 NSERC Reference Letters

Dr Renee Polziehn
Faculty of Graduate Studies and Research
Letters of Appraisal - Reports on the Applicant (2)

- **One report** should be from a person very familiar with your research AND other abilities – **Most recent research supervisor**

- **Second report** should be from a person sufficiently familiar with your research and other abilities to provide a meaningful commentary.

- **Note**: Cannot be completed by a proposed supervisor unless that person is currently your supervisor or has been your supervisor in the past.
Letters of Appraisal - Reports on the Applicant (2)

• **Completing Bachelor’s degree/just starting graduate program**
  – Faculty members who have had sufficient opportunity to assess your potential e.g. Undergraduate Research projects/courses or extensive course projects
  – If applicable, can assess the importance of your publications
  – Industrial research supervisor (co-op or internship)

• **Currently in a doctoral program**
  – Current doctoral thesis supervisor
  – Prior Master’s supervisor (best)
  – Faculty members who have had sufficient opportunity to assess your potential at the Bachelor's or Master’s level.
Who Should Write Your Letter?

- Individuals who are familiar with skills required, that is, individuals who can comment on your academic skills, your research abilities/potential, and your communication/leadership skills.

- Individuals who can provide examples to support their points.

- Individuals with whom you have worked closely, with whom you have developed a professional relationship.

- Individuals who have good writing skills and have a position of value.
What Information to Provide?

• All and any information that appraiser can use to write a stellar letter
  – CV or resume
  – Copy of your transcript(s) – does not have to be official
  – Copy of your research proposal
  – Copy of your papers (if any)
  – Details of your research and leadership abilities/experiences

• Submission instructions
  – Forms / Websites (letters must be upload online)
  – Deadline
A Good Letter of Appraisal

- Focuses on the applicant and is enthusiastic.
- Supports the information in the application.
- Provides specific examples of strengths, accomplishments and contributions of the applicant.
- Comments on the quality of the applicant's contributions to R&D and their role in joint publications.
- Comments on the quality of the journals in which the applicant has published.
- Demonstrates why the applicant is of superior calibre especially with regard to communication, interpersonal and leadership abilities.
What Not to Do

• Asking someone to write a letter just before/after class, in the hallway.

• Push for a positive response (individual may decline to write a letter, knowing it would not help your application).

• Wait until the last minute to ask for a letter.

• Not providing submission details.

• Not providing supporting information; not providing the information all at once.
Important Considerations in Completing Forms

The Student’s View
Important Considerations in Completing Forms

The Reviewer’s View
Questions?

Contact NSERC

• NSERC On-line System:
  ➢ webapp@nserc-crsng.gc.ca
  ➢ 613.995.4273

• NSERC Program Information:
  ➢ schol@nserc-crsng.gc.ca

Contact FGSR, Awards Services

➢ 780.492.9460
➢ grad.awards@ualberta.ca