Evolution and Ecology Evaluation Group
Annual Report – 2013 Competition

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The numbers and statistics contained in this report are included to help the reader understand the context of the competition. They should not be used for any other purpose.

Executive Summary

All applications reviewed by the Evolution and Ecology Evaluation Group in the 2013 competition were evaluated for three separate criteria according to NSERC's Discovery Grant Merit Indicators. These individual ratings were then used to group applications of comparable quality into one of sixteen funding bins. Funding amounts were then assigned to the bins, ensuring that the most meritorious researchers received funding levels to allow them to be competitive on an international scale.

The following tables summarize the outcome of the competition for the Evolution and Ecology Evaluation Group.

Table 1: Results of 2013 Discovery Grant Competition for the Evolution and Ecology Evaluation Group

Discovery Grants	Established Researchers Renewals	Other Established Researchers	Early-Career Researchers
Number of Applications	145	50	35
Number of Awards	110	15	21
Success Rate	76%	30%	60%
Average Grant	$34,381	$24,333	$23,810
Total Budget	$3,781,950	$365,000	$500,000

Table 2: Results of 2013 Research Tools and Instruments Competition for the Evolution and Ecology Evaluation Group

Research Tools & Instruments (Category 1)		Established Researchers	Early-Career Researchers
Number of Applications	(63)	54	9
Number of Awards	(15)	14	1
Funding Rate	(23%)	19.4%	3.6%
Total Budget	($727,957)	$614,337	$113,620

Please note that the statistics above and the information contained in this report is made to reflect the experience and recommendations of the Executive Committee for the EG. Final decisions are subject to NSERC's approval and information on final results can be found on NSERC's website.

The following describes the competition process, including financial aspects, as well as a summary of the comments, suggestions, and concerns voiced by members of the Evaluation Group during the policy meeting or at any time during the competition cycle.

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1. INTRODUCTION

For the fourth year the competition saw the successful use of the conference model that was recommended in the Grant Selection Committee Structure Review report in 2008. The model consists of 12 Evaluation Groups (EG) whose members form into sections based on the match between their expertise and the specific topics of a set of applications. As needed, members from different groups joined different sections to review topics that cross the traditional boundaries between disciplines. As well the conference model provides the flexibility needed to react to the emergence of new research areas.

2. PROCEDURES AND REVIEW PROCESS

The evaluation of all applications submitted to the 2013 Discovery Grants competition was performed according to the review process outlined in Chapter 6 of the Peer Review Manual which can be found on NSERC's website.

Orientation sessions were held by teleconference for most new members early September 2012. Various procedures and processes were discussed with members (comfort ratings, selection of external referees, calibration of members on the use of the rating scale, etc.). A more in-depth calibration session was held at the beginning of competition week.

2.1. External Referee Reports

- Quantitative summary of referee reports requested/received

Table 3: Summary of referee reports requested and received by the Evolution and Ecology Evaluation Group

Referee Reports Requested	Referee Reports Received
1332	558

Table 4: External referee response rate for applications in the Evolution and Ecology Evaluation Group

Number of Referee Reports Received	Number of Applications
0	3
1	41
2	86
3	64
4	32
5	20
>5	0

2.2. Transferred applications

A virtual meeting of the Evaluation Group Section Chairs (EG Executive Committee meeting) was held on November 17st, 2012, to determine the most appropriate Evaluation Group to take the lead for the review of a certain number of Discovery grant applications. Table 5 summarizes the number of transfers between evaluation groups.

Table 5: Summary of transfers in and out of Evaluation Groups

		Reviewing Evaluation Group (Transferred to)												
		GCM	**BSF**	**EE**	**Chem**	**Phys**	**Geo**	**CS**	**MS**	**CISE**	**ECE**	**MCE**	**ME**	**Total**
Original Evaluation Group (Transferred from)	**GCM**		2	0	0	0	0	0	1	0	0	0	0	3
	BSF	17		1	0	0	0	0	0	0	0	0	0	18
	EE	2	1		0	0	0	0	0	0	0	0	0	3
	Chem	1	0	0		1	2	0	0	0	0	1	0	5
	Phys	0	0	0	0		2	0	0	0	1	0	1	4
	Geo	0	1	1	0	0		0	0	3	0	0	0	5
	CS	0	1	1	0	0	0		2	0	2	0	1	7
	MS	0	1	0	0	0	0	1		1	0	0	0	3
	CISE	0	0	0	0	0	1	0	0		0	2	0	3
	ECE	0	1	0	0	4	0	10	0	0		0	1	16
	MCE	1	0	0	1	0	0	0	0	1	0		0	3
	ME	0	0	0	0	0	1	0	0	0	1	2		4
	Total	21	7	3	1	5	6	11	3	5	4	5	3	

Evaluation Groups:

GCM – Genes, Cells and Molecules
BSF – Biological Systems and Functions
EE – Evolution and Ecology
Chem – Chemistry
Phys – Physics
Geo – Geoscience
CS – Computer Science
MS – Mathematics and Statistics
CISE – Civil, Industrial and Systems Eng.
ECE – Electrical and Computer Engineering
MCE – Materials and Chemical Engineering
ME – Mechanical Engineering

2.3. Joint sessions and applications involving another EG

The Evaluation Group's Executive Committee meeting also provided the opportunity to arrange for reviews involving members from other Evaluation Groups (Joint Reviews). Table 6 illustrates the numbers of applications and research topics involving another EG.

Table 6: Summary of applications involving another EG

		Participating (Visiting) Evaluation Group												
		GCM	**BSF**	**EE**	**Chem**	**Phys**	**Geo**	**CS**	**MS**	**CISE**	**ECE**	**MCE**	**ME**	**Total**
Reviewing (Home) Evaluation Group	**GCM**		95	22	16	4	1	1	9	2	0	8	5	163
	BSF	97		13	1	0	3	2	7	1	1	3	3	131
	EE	38	23		1	0	18	3	7	3	0	0	1	94
	Chem	14	3	2		10	6	0	1	1	0	6	2	45
	Phys	3	1	0	12		4	2	6	0	13	0	2	43
	Geo	2	1	25	9	3		3	8	13	0	0	1	65
	CS	3	4	0	1	1	0		8	8	15	0	3	43
	MS	6	1	4	1	6	2	9		3	3	2	7	44
	CISE	0	5	4	0	0	17	11	8		1	7	12	65
	ECE	1	2	0	0	6	2	15	4	3		2	6	41
	MCE	2	3	0	12	4	3	0	1	12	6		9	52
	ME	0	2	0	0	3	0	1	3	7	9	17		42
	Total	166	140	70	53	37	56	47	62	53	48	45	51	828

Notes:

Applications involving members from more than one other EG (i.e. more than 2 EGs participating in the review) appear more than once.

Joint reviews involving more than one member from the same EG appear only once.

Reviews involving different streams of the same EG, without participation from other EGs, do not appear in this table.

Evaluation Groups:

GCM – Genes, Cells and Molecules
BSF – Biological Systems and Functions
EE – Evolution and Ecology
Chem – Chemistry
Phys – Physics
Geo – Geoscience
CS – Computer Science
MS – Mathematics and Statistics
CISE – Civil, Industrial and Systems Eng.
ECE – Electrical and Computer Engineering
MCE – Materials and Chemical Engineering
ME – Mechanical Engineering

3. COMPETITION OUTCOMES

3.1. Evaluation of Applications

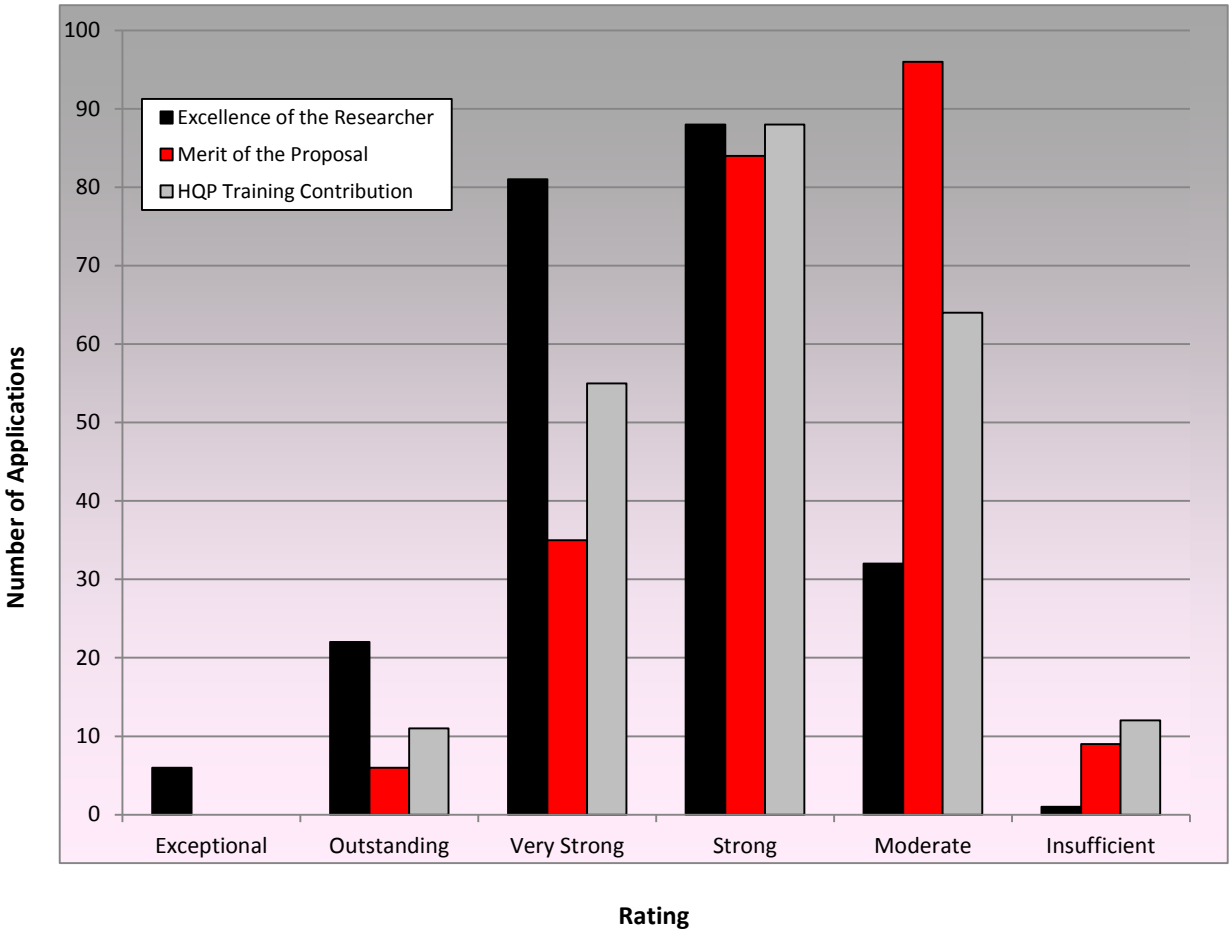

Figure 1: Distribution of ratings for each criterion in Evolution and Ecology Evaluation Group.

3.2. Funding Policy and Grant Recommendations

The following policies were used in the setting of grant amounts.

- Applications in Bin A should receive:
  - The greater of the bin amount or the previous award OR
  - An amount greater than both the bin amount or the previous award AND
  - No more than the amount requested.

- Applications in Bins B-C: the final award will be the greater of the bin amount or the previous award, rounded to the nearest $1,000 AND no more than the requested amount.
- Bin amounts were varied from those set last year, according to the following rules:
    - The amounts for Bins A-C should not be altered or only altered minimally, as much as possible
    - The amounts for Bins D-F can be altered by no more than 5%
    - The amounts for Bins G-J can be altered significantly as long as the minimum grant amount remains at a level that can reasonably support research in the area.

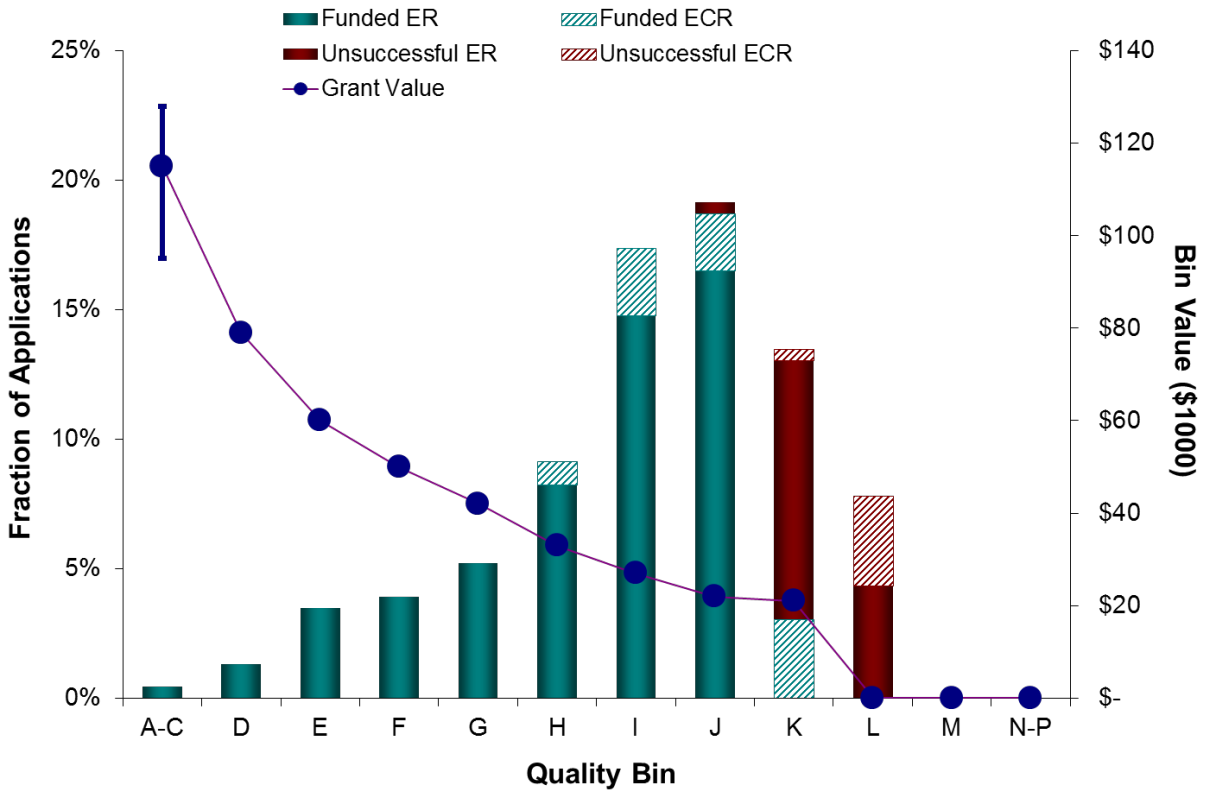

Figure 2: Summary of recommended grant amounts and distribution of applications in the Evolution and Ecology EG. The final amount does not include the $5000 supplement received by successful ECRs.

3.3. Grant Duration

The normal duration of a Discovery Grant is five years. Evaluation Groups may recommend grants of one to three years duration in specific circumstances, on a case-by-case basis.

Greater than eighty per cent of grants were awarded for five years. There were 29 one-year awards, 27 of which had a score of Moderate for Merit of Proposal.

3.4. Discovery Accelerator Supplements

Evaluation Groups reviewed applications in accordance with the Discovery Grant criteria and recommended applicants for a supplement, according to the objective and description of the DAS Program. Thirteen candidates were nominated by reviewing members and the number of supporting votes for each was recorded. At the end of competition, the Executive Committee of each Evaluation Group, in coordination with NSERC Program staff, conducted a final analysis of the DAS nominees provided by the members during the competition week. The nominees who best meet the objectives of the DAS program and had the highest number of votes from reviewers, within the quota of 11 DAS awards allocated to the Evaluation Group, were nominated to the President for a DAS.

Members of the Evolution and Ecology Evaluation Group were given the following guidelines for DAS nominations:

In addition to assessing applications, we have the pleasant opportunity to award Discovery Accelerators (DAS) to a certain number of applicants whose research programs:

"Provide substantial and timely additional resources to maximize the impact of superior discovery research programs (original and innovative) that explore high risk transformational concepts. These concepts include innovative approaches that can accelerate a research program in new directions and/or have great potential for major breakthroughs."

More information can be found at:

http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGAS-SGSA_eng.asp

http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGAS-SGSA_fra.asp

You will note that DAS is now focused explicitly on those exciting research programs that put ideas at risk. Although a DAS nomination can be made for any researcher, the expectations are that:

- Most nominations will be made for well-established novel research programs *with potential to transform the way that we think about particular problems or concepts.*
- Applications with ratings of at least VERY STRONG for both Excellence of the Researcher and Merit of the Proposal.

NSERC asks that we assess all appropriate applications for nomination to receive a DAS. The nominations will be screened by the 1503 Executive Committee that will first seek your input to develop the priorities for ranking the list of nominees. Research programs that reinforce what is already known, or those making incremental advances, no matter how productive or apparently influential, would typically be ineligible to receive a Discovery Accelerator.

In order to streamline this process, and to ensure that all meritorious applications are considered, please use the following protocol.

1. Use your list of 1st and 2nd reads to identify application(s) which you feel meet the eligibility criteria for the program.

2. From that list, select one applicant to nominate as a potential DAS candidate during the review of the application in competition week. Write a single sentence stating the main reason why this application is deserving of consideration for a DAS. During the review of the application, you will announce your nomination and submit the supporting sentence.

A vote by all readers of an application will gauge the degree of support for each nomination. The list of DAS candidates and votes will be submitted to the Executive Committee for discussion and determination of final ranking. Your supporting sentence will help guide the Executive Committee's final decisions.

Should your list of 1st and 2nd reads include more than one highly eligible application, you will have the opportunity during review to suggest additional nominations. We suspect that this will be a very small set.

3.5. Research Tools & Instruments

This year the Evolution and Ecology Evaluation Group received a total of 63 Research Tools and Instruments applications. Again the RTI applications were reviewed by an external ad-hoc subcommittee made up of six recent and two potential Evolution and Ecology Evaluation Group members. Each application was reviewed and scored by a combination of 3 members with the highest degree of expertise and knowledge of the particular equipment request.

The members provided an equal force-ranked list from 1 to 10 (1 the lowest to 10 the strongest score) for all the applications that they reviewed. All scores from the members of the subcommittee were merged together to give an averaged, ranked list. Each member received a version of the list with the applications for which they had provided input. These lists were further discussed among members, particularly applications with extremely variant scores; then members came to a consensus on a final score to be assigned.

Discussions were thorough, focusing mainly on examining discrepancies in scoring, and ensuring that the requested amounts were justified. There were no applications flagged for partial funding this year.

- Summary of results (also repeated in Executive Summary)

Research Tools & Instruments (Category 1)	Established Researchers	Early-Career Researchers
Number of Applications (63)	54	9
Number of Awards (15)	14	1
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4. EVALUATION GROUP FEEDBACK

The Group Chair and Co-Chairs (Executive Committee) of the Evolution and Ecology Evaluation Group strongly recommend to prospective Discovery Grant applicants to begin preparation of the CCV as soon as the NSERC template is available (April 25, 2013).

Summary: Policy Discussion EG 1503, Evolution and Ecology

Members of EG 1503 engaged in a lively policy discussion following the review of applications. Discussions centred around four inter-related themes.

Membership and Service

There was strong agreement with the need to reduce the workload for the members by increasing the number of reviewing members of the Evaluation Group. It was highly recommended that the EG membership be increased for the next 1-2 years, particularly with the implementation of the new format of the CCV. A recommendation was made to reduce the assignment workload for international members. It was anticipated that if a reduced workload is offered to potential international and industrial members, a greater success rate of recruitment would be achieved. One proposal was for international members to participate only as 3rd reader, and not as 1st or 2nd. This way they could provide input on the same number of proposals as other EG members, but not be burdened with the added workload of advocating/defending a particular recommendation.

Another idea to assist with member recruitment was the acknowledgement of service of former members. During the next assessment of the Discovery Grant application of a former member, the application could receive a "bonus bin"; an increase to the Excellence of the Researcher criterion; or have their 3-year membership be considered a valid delay in research. Alternatively, members could be given one additional year of extension of their funding. Members did not come to an agreement regarding the method of acknowledgement or whether any of these suggestions for acknowledgement of service would be acceptable.

It was recommended that NSERC provide a stipend for members to travel to nearby institutions to allow members to give information about the assessment of Discovery Grants and preparation of an application. This might also allow for greater communication with researchers at small institutions. Members emphasized the importance of sharing the attributes of successful DG applications and encouraging potential applicants to thoroughly read instructions and make use of resources.

Facilitating the Work

Members requested that they be given 3 weeks to assess and return their 'comfort levels' in late August – early September. To make things easier, they would prefer to have applications and External Referee Reports sorted and placed into customized folders for each member. Also concerning the Extranet, members requested that features work for all users (for example, the bulk download feature did not work for Mac computers and a work-around was not offered to everyone).

Applications and Assessment

Members would like more guidance on specific rules for nominating and voting for DAS candidates. Differences were observed in the practices of other Evaluation Groups. It was found that the discussion of DAS occurred before the vote in some EG sections and after the vote in others. There was concern that this might result in unfairness in the selection of DAS candidates. A consistent approach was encouraged.

EG members found that there seemed to be misunderstanding about the six-year window for publications to be considered in the application. It is hoped that the CCV may allow for a more consistent employment of this rule.

With respect to citation indices, some members felt that everyone (all EG members) should follow the same rules. Others expressed that, if citation index or impact factor was raised during the discussion of an application, it could be included in the assessment. Some members believed that citation index and impact factors should always be ignored.

The 5 Most Significant Contributions was an essential part of the "old" application, according to EG members. Concerns were raised about the potential loss of this extremely important assessment tool. The explanation of significance of contributions was considered a critical component and must not be lost. The loss of other information, such as software advances, patents, and technical reports, was also a concern. Members emphasize that the 5 Most Significant Contributions is the key element to assess the Excellence of the Researcher and it must be incorporated into the new CCV application.

Although it was acknowledged that it is uncertain how the CCV format will affect this, members believe that it should be clearer that the recommended headings in F101 are suggestions and not requirements. Some members expressed that the headings were not the best way to present the information in an application, although others support the current format.

Members indicated that there must be a way to identify HQP in the publication lists of the new CCV format. If applicants cannot bold, highlight or otherwise identify their HQP, it will be extremely time-consuming for members to assess the contribution of HQP.

Although there was some disagreement, several members felt that too much weight is placed on HQP training within the DG application. These members suggested that weight of the criteria be re-distributed in a ratio of 3:2:1 (Excellence of the Researcher: Merit of the Proposal: Contribution to HQP Training). Many members were of the opinion that, in the evaluation of HQP training, there is too much emphasis placed on numbers of students rather than the quality of training or training philosophy. Members also noted greater variation among initial scores for Merit of the Proposal and Contribution to HQP Training, compared to Excellence of the Researcher. This suggests that EG members had greater difficulty judging the latter two criteria consistently, which also supports an argument for reducing the weight given to them.

With the implementation of the CCV, members expressed concern that the review process will be onerous. Concerns were raised about the amount of material that will need to be assessed to ensure a fair and thorough review. Members worry about the non-specific nature of the information that may be included in the new CCV format. Valuable targeted information may be lost, especially within the anticipated bulk of information. Several members felt quite strongly that quantitative data entered on the CCV should be aggregated into summary tables automatically -- using the actual data in the CCV -- so that the aggregated results are: a) easier to digest, b) easier to interpret in a consistent manner, and c) more reliable.

Members expressed that all members need training with respect to the new application format. In anticipation of the changes in the review process as a result of the implementation of the CCV format, it was recommended that Fall orientation sessions include current members so that all members are included in training.

Competition Results

Members of the Evolution and Ecology Evaluation Group are concerned with the success rates of the first-time renewal (RF$) applicants. Members encouraged NSERC to examine the results and try to determine the reason that this rate is low.