



INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL
TRAINING AT THE UNIVERSITY OF HELSINKI 2005–2010

RC-Specific Evaluation of CoE MRG – Centre of Excellence in Metapopulation Research

Seppo Saari & Antti Moilanen (Eds.)



Evaluation Panel: Biological, Agricultural and Veterinary Sciences

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Title: International Evaluation of Research and Doctoral Training at the University of Helsinki 2005–2010 : RC-Specific Evaluation of CoE MRG – Centre of Excellence in Metapopulation Research	Type of publication: Evaluations
Summary: Researcher Community (RC) was a new concept of the participating unit in the evaluation. Participation in the evaluation was voluntary and the RCs had to choose one of the five characteristic categories to participate. Evaluation of the Researcher Community was based on the answers to the evaluation questions. In addition a list of publications and other activities were provided by the TUHAT system. The CWTS/Leiden University conducted analyses for 80 RCs and the Helsinki University Library for 66 RCs. Panellists, 49 and two special experts in five panels evaluated all the evaluation material as a whole and discussed the feedback for RC-specific reports in the panel meetings in Helsinki. The main part of this report is consisted of the feedback which is published as such in the report. Chapters in the report: 1. Background for the evaluation 2. Evaluation feedback for the Researcher Community 3. List of publications 4. List of activities 5. Bibliometric analyses The level of the RCs' success can be concluded from the written feedback together with the numeric evaluation of four evaluation questions and the category fitness. More conclusions of the success can be drawn based on the University-level report.	
RC-specific information:	
Main scientific field of research: Biological, Agricultural and Veterinary Sciences	RC-specific keywords: metapopulation, spatial and eco-evolutionary dynamics, conservation biology, co-evolution, mathematical modelling, host-parasite interaction, dispersal, functional genomics, Glanville fritillary, reserve design
Participation category: 1. Research of the participating community represents the international cutting edge in its field	
RC's responsible person: Hanski, Ilkka	
Keywords: Research Evaluation, Meta-evaluation, Doctoral Training, Bibliometric Analyses, Researcher Community	

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Foreword

The evaluation of research and doctoral training is being carried out in the years 2010–2012 and will end in 2012. The steering group appointed by the Rector in January 2010 set the conditions for participating in the evaluation and prepared the Terms of Reference to present the evaluation procedure and criteria. The publications and other scientific activities included in the evaluation covered the years 2005–2010.

The participating unit in the evaluation was defined as a Researcher Community (RC). To obtain a critical mass with university-level impact, the number of members was set to range from 20 to 120. The RCs were required to contain researchers in all stages of their research career, from doctoral students to principal investigators (PIs). All in all, 136 Researcher Communities participated in this voluntary evaluation, 5857 persons in total, of whom 1131 were principal investigators. PIs were allowed to participate in two communities in certain cases, and 72 of them used this opportunity and participated in two RCs.

This evaluation enabled researchers to define RCs from the “bottom up” and across disciplines. The aim of the evaluation was not to assess individual performance but a community with shared aims and researcher-training activities. The RCs were able to choose among five different categories that characterised the status and main aims of their research. The steering group considered the process of applying to participate in the evaluation to be important, which led to the establishment of these categories. In addition, providing a service for the RCs to enable them to benchmark their research at the global level was a main goal of the evaluation.

The data for the evaluation consisted of the RCs’ answers to evaluation questions on supplied e-forms and a compilation extracted from the TUHAT – Research Information System (RIS) on 12 April 2011. The compilation covered scientific and other publications as well as certain areas of scientific activities. During the process, the RCs were asked to check the list of publications and other scientific activities and make corrections if needed. These TUHAT compilations are public and available on the evaluation project sites of each RC in the TUHAT-RIS.

In addition to the e-form and TUHAT compilation, University of Leiden (CWTS) carried out bibliometric analyses from the articles included in the Web of Science (WoS). This was done on University and RC levels. In cases where the publication forums of the RC were clearly not represented by the WoS data, the Library of the University of Helsinki conducted a separate analysis of the publications. This was done for 66 RCs representing the humanities and social sciences.

The evaluation office also carried out an enquiry targeted to the supervisors and PhD candidates about the organisation of doctoral studies at the University of Helsinki. This and other documents describing the University and the Finnish higher education system were provided to the panellists.

The panel feedback for each RC is unique and presented as an entity. The first collective evaluation reports available for the whole panel were prepared in July–August 2011. The reports were accessible to all panel members via the electronic evaluation platform in August. Scoring from 1 to 5 was used to complement written feedback in association with evaluation questions 1–4 (scientific focus and quality, doctoral training, societal impact, cooperation) and in addition to the category evaluating the fitness for participation in the evaluation. Panellists used the international level as a point of comparison in the evaluation. Scoring was not expected to go along with a preset deviation.

Each of the draft reports were discussed and dealt with by the panel in meetings in Helsinki (from 11 September to 13 September or from 18 September to 20 September 2011). In these meetings the panels also examined the deviations among the scores and finalised the draft reports together.

The current RC-specific report deals shortly with the background of the evaluation and the terms of participation. The main evaluation feedback is provided in the evaluation report, organised according to the evaluation questions. The original material provided by the RCs for the panellists has been attached to these documents.

On behalf of the evaluation steering group and office, I sincerely wish to thank you warmly for your participation in this evaluation. The effort you made in submitting the data to TUHAT-RIS is gratefully acknowledged by the University. We wish that you find this panel feedback useful in many ways. The bibliometric profiles may open a new view on your publication forums and provide a perspective for discussion on your choice of forums. We especially hope that this evaluation report will help you in setting the future goals of your research.

Johanna Björkroth
Vice-Rector
Chair of the Steering Group of the Evaluation

Steering Group of the evaluation

Steering group, nominated by the Rector of the University, was responsible for the planning of the evaluation and its implementation having altogether 22 meetings between February 2010 and March 2012.

Chair

Vice-Rector, professor **Johanna Björkroth**

Vice-Chair

Professor **Marja Airaksinen**

Chief Information Specialist, Dr **Maria Forsman**

Professor **Arto Mustajoki**

University Lecturer, Dr **Kirsi Pyhälä**

Director of Strategic Planning and Development, Dr **Ossi Tuomi**

Doctoral candidate, MSocSc **Jussi Vauhkonen**

Panel members

CHAIR

Professor Ary A. Hoffman

Ecological genetics, evolutionary biology,
biodiversity conservation, zoology
University of Melbourne, Australia

VICE-CHAIR

Professor Barbara Koch

Forest Sciences, remote sensing
University of Freiburg, Germany

Professor Per-Anders Hansson

Agricultural engineering, modeling, life cycle
analysis, bioenergy
Swedish University of Agricultural Sciences

Professor Danny Huylebroeck

Developmental biology
Katholieke Universiteit Leuven, Belgium

Professor Jonathan King

Virus assembly, protein folding
Massachusetts Institute of Technology MIT, USA

Professor Hannu J.T. Korhonen

Functional foods, dairy technology, milk hygiene
MTT Agrifood Research Finland

Professor Kristiina Kruus

Microbiological biotechnology, microbiological
enzymes, applied microbiology
VTT Technical Research Centre of Finland

Professor Joakim Lundeberg

Biochemistry, biotechnology, sequencing, genomics
KTH Royal Institute of Technology, Sweden

Professor Dominiek Maes

Veterinary medicine
Ghent University, Belgium

Professor Olli Saastamoinen

Forest economics and policy
University of Eastern Finland

Professor Kai Simons

Biochemistry, molecular biology, cell biology
Max-Planck-Institute of Molecular Cell Biology and
Genetics, Germany

The panel, independently, evaluated all the submitted material and was responsible for the feedback of the RC-specific reports. The panel members were asked to confirm whether they had any conflict of interests with the RCs. If this was the case, the panel members disqualified themselves in discussion and report writing.

Added expertise to the evaluation was contributed by the members from the other panels and by one evaluator outside the panels.

External Expert
Professor Anders Linde
Oral biochemi
Faculty of Odontology
Göteborg University
Sweden

Experts from the Other Panels

Professor Caitlin Buck, from the Panel of Natural Sciences
Professor Ritske Huismans, from the Panel of Natural Sciences
Professor Johanna Ivaska, from the Panel of Medicine, biomedicine and health sciences
Professor Lea Kauppi, from the Panel of Natural Sciences
Professor Holger Stark, from the Panel of Natural Sciences
Professor Peter York, from the Panel of Medicine, biomedicine and health sciences

EVALUATION OFFICE

Dr Seppo Saari, Doc., Senior Adviser in Evaluation, was responsible for the entire evaluation, its planning and implementation and acted as an Editor-in-chief of the reports.

Dr Eeva Sievi, Doc., Adviser, was responsible for the registration and evaluation material compilations for the panellists. She worked in the evaluation office from August 2010 to July 2011.

MSocSc Paula Ranne, Planning Officer, was responsible for organising the panel meetings and all the other practical issues like agreements and fees and editing a part the RC-specific reports. She worked in the evaluation office from March 2011 to January 2012.

Mr Antti Mollanen, Project Secretary, was responsible for editing the reports. He worked in the evaluation office from January 2012 to April 2012.

TUHAT OFFICE

Provision of the publication and other scientific activity data

Mrs Aija Kaitera, Project Manager of TUHAT-RIS served the project ex officio providing the evaluation project with the updated information from TUHAT-RIS. The TUHAT office assisted in mapping the publications with CWTS/University of Leiden.

MA Liisa Ekebon, Assisting Officer, served in TUHAT-RIS updating the publications for the evaluation. She also assisted the UH/Library analyses.

BA Liisa Jäppinen, Assisting Officer, served in TUHAT-RIS updating the publications for the evaluation.

HELSINKI UNIVERSITY LIBRARY

Provision of the publication analyses

Dr Maria Forsman, Chief Information Specialist in the Helsinki University Library, managed with her 10 colleagues the bibliometric analyses in humanities, social sciences and in other fields of sciences where CWTS analyses were not applicable.

Acronyms and abbreviations applied in the report

External competitive funding

AF - Academy of Finland
TEKES - Finnish Funding Agency for Technology and Innovation
EU - European Union
ERC - European Research Council
International and national foundations
FP7/6 etc. /Framework Programmes/Funding of European Commission

Evaluation marks

Outstanding (5)
Excellent (4)
Very Good (3)
Good (2)
Sufficient (1)

Abbreviations of Bibliometric Indicators

P - Number of publications
TCS - Total number of citations
MCS - Number of citations per publication, excluding self-citations
PNC - Percentage of uncited publications
MNCS - Field-normalized number of citations per publication
MNJS - Field-normalized average journal impact
THCP10 - Field-normalized proportion highly cited publications (top 10%)
INT_COV - Internal coverage, the average amount of references covered by the WoS
WoS - Thomson Reuters Web of Science Databases

Participation category

Category 1. The research of the participating community represents the international cutting edge in its field.

Category 2. The research of the participating community is of high quality, but the community in its present composition has yet to achieve strong international recognition or a clear break-through.

Category 3. The research of the participating community is distinct from mainstream research, and the special features of the research tradition in the field must be considered in the evaluation.

Category 4. The research of the participating community represents an innovative opening.

Category 5. The research of the participating community has a highly significant societal impact.

Research focus areas of the University of Helsinki

Focus area 1: The basic structure, materials and natural resources of the physical world

Focus area 2: The basic structure of life

Focus area 3: The changing environment - clean water

Focus area 4: The thinking and learning human being

Focus area 5: Welfare and safety

Focus area 6: Clinical research

Focus area 7: Precise reasoning

Focus area 8: Language and culture

Focus area 9: Social justice

Focus area 10: Globalisation and social change

1 Introduction to the Evaluation

1.1 RC-specific evaluation reports

The participants in the evaluation of research and doctoral training were Researcher Communities (hereafter referred to as the RC). The RC refers to the group of researchers who registered together in the evaluation of their research and doctoral training. Preconditions in forming RCs were stated in the Guidelines for the Participating Researcher Communities. The RCs defined themselves whether their compositions should be considered well-established or new.

It is essential to emphasise that the evaluation combines both meta-evaluation¹ and traditional research assessment exercise and its focus is both on the research outcomes and procedures associated with research and doctoral training. The approach to the evaluation is enhancement-led where self-evaluation constituted the main information. The answers to the evaluation questions formed together with the information of publications and other scientific activities an entity that was to be reviewed as a whole.

The present evaluation recognizes and justifies the diversity of research practices and publication traditions. Traditional Research Assessment Exercises do not necessarily value high quality research with low volumes or research distinct from mainstream research. It is challenging to expose the diversity of research to fair comparison. To understand the essence of different research practices and to do justice to their diversity was one of the main challenges of the present evaluation method. Understanding the divergent starting points of the RCs demanded sensitivity from the evaluators.

1.2 Aims and objectives in the evaluation

The aims of the evaluation are as follows:

- to improve the level of research and doctoral training at the University of Helsinki and to raise their international profile in accordance with the University's strategic policies. The improvement of doctoral training should be compared to the University's policy.²
- to enhance the research conducted at the University by taking into account the diversity, originality, multidisciplinary nature, success and field-specificity,
- to recognize the conditions and prerequisites under which excellent, original and high-impact research is carried out,
- to offer the academic community the opportunity to receive topical and versatile international peer feedback,
- to better recognize the University's research potential.
- to exploit the University's TUHAT research information system to enable transparency of publishing activities and in the production of reliable, comparable data.

1.3 Evaluation method

The evaluation can be considered as an enhancement-led evaluation. Instead of ranking, the main aim is to provide useful information for the enhancement of research and doctoral training of the participating RCs. The comparison should take into account each field of science and acknowledge their special character.

¹ The panellists did not read research reports or abstracts but instead, they evaluated answers to the evaluation questions, tables and compilations of publications, other scientific activities, bibliometrics or comparable analyses.

² [Policies on doctoral degrees and other postgraduate degrees at the University of Helsinki.](#)

The comparison produced information about the present status and factors that have led to success. Also challenges in the operations and outcomes were recognized.

The evaluation approach has been designed to recognize better the significance and specific nature of researcher communities and research areas in the multidisciplinary top-level university. Furthermore, one of the aims of the evaluation is to bring to light those evaluation aspects that differ from the prevalent ones. Thus the views of various fields of research can be described and research arising from various starting points understood better. The doctoral training is integrated into the evaluation as a natural component related to research. Operational processes of doctoral training are being examined in the evaluation.

Five stages of the evaluation method were:

1. Registration – Stage 1
2. Self-evaluation – Stage 2
3. TUHAT³ compilations on publications and other scientific activities⁴
4. External evaluation
5. Public reporting

1.4 Implementation of the external evaluation

Five Evaluation Panels

Five evaluation panels consisted of independent, renowned and highly respected experts. The main domains of the panels are:

1. biological, agricultural and veterinary sciences
2. medicine, biomedicine and health sciences
3. natural sciences
4. humanities
5. social sciences

The University invited 10 renowned scientists to act as chairs or vice-chairs of the five panels based on the suggestions of faculties and independent institutes. Besides leading the work of the panel, an additional role of the chairs was to discuss with other panel chairs in order to adopt a broadly similar approach. The panel chairs and vice-chairs had a pre-meeting on 27 May 2011 in Amsterdam.

The panel compositions were nominated by the Rector of the University 27 April 2011. The participating RCs suggested the panel members. The total number of panel members was 50. The reason for a smaller number of panellists as compared to the previous evaluations was the character of the evaluation as a meta-evaluation. The panellists did not read research reports or abstracts but instead, they evaluated answers to the evaluation questions, tables and compilations of publications, other scientific activities, bibliometrics and comparable analyses.

The panel meetings were held in Helsinki:

- On 11–13 September 2011: (1) biological, agricultural and veterinary sciences, (2) medicine, biomedicine and health sciences and (3) natural sciences.
- On 18–20 September 2011: (4) humanities and (5) social sciences.

³ TUHAT (acronym) of Research Information System (RIS) of the University of Helsinki

⁴ Supervision of thesis, prizes and awards, editorial work and peer reviews, participation in committees, boards and networks and public appearances.

1.5 Evaluation material

The main material in the evaluation was the RCs' self-evaluations that were qualitative in character and allowed the RCs to choose what was important to mention or emphasise and what was left unmentioned.

The present evaluation is exceptional at least in the Finnish context because it is based on both the evaluation documentation (self-evaluation questions, publications and other scientific activities) and the bibliometric reports. All documents were delivered to the panellists for examination.

Traditional bibliometrics can be reasonably done mainly in medicine, biosciences and natural sciences when using the Web of Science database, for example. Bibliometrics, provided by CWTS/The Centre for Science and Technology Studies, University of Leiden, cover only the publications that include WoS identification in the TUHAT-RIS.

Traditional bibliometrics are seldom relevant in humanities and social sciences because the international comparable databases do not store every type of high quality research publications, such as books and monographs and scientific journals in other languages than English. The Helsinki University Library has done analysis to the RCs, if their publications were not well represented in the Web of Science databases (RCs should have at least 50 publications and internal coverage of publications more than 40%) – it meant 58 RCs. The bibliometric material for the evaluation panels was available in June 2011. The RC-specific bibliometric reports are attached at the end of each report.

The panels were provided with the evaluation material and all other necessary background information, such as the basic information about the University of Helsinki and the Finnish higher education system.

Evaluation material

1. Registration documents of the RCs for the background information
2. Self evaluation material – answers to the evaluation questions
3. Publications and other scientific activities based on the TUHAT RIS:
 - 3.1. statistics of publications
 - 3.2. list of publications
 - 3.3. statistics of other scientific activities
 - 3.4. list of other scientific activities
4. Bibliometrics and comparable analyses:
 - 4.1. Analyses of publications based on the verification of TUHAT-RIS publications with the Web of Science publications (CWTS/University of Leiden)
 - 4.2. Publication statistics analysed by the Helsinki University Library - mainly for humanities and social sciences
5. University level survey on doctoral training (August 2011)
6. University level analysis on publications 2005–2010 (August 2011) provided by CWTS/University of Leiden

Background material

University of Helsinki

- [Basic information about the University of the Helsinki](#)
- [The structure of doctoral training at the University of Helsinki](#)
- Previous evaluations of research at the University of Helsinki – links to the reports: [1998](#) and [2005](#)

The Finnish Universities/Research Institutes

- [Finnish University system](#)
- [Evaluation of the Finnish National Innovation System](#)
- [The State and Quality of Scientific Research in Finland. Publication of the Academy of Finland 9/09.](#)

The evaluation panels were provided also with other relevant material on request before the meetings in Helsinki.

1.6 Evaluation questions and material

The participating RCs answered the following evaluation questions which are presented according to the evaluation form. In addition, TUHAT RIS was used to provide the **additional material** as explained. For giving the feedback to the RCs, the panellists received the evaluation feedback form constructed in line with the evaluation questions:

1. Focus and quality of the RC's research

- Description of
 - the RC's research focus.
 - the quality of the RC's research (incl. key research questions and results)
 - the scientific significance of the RC's research in the research field(s)
- Identification of the ways to strengthen the focus and improve the quality of the RC's research

The additional material: TUHAT compilation of the RC's publications, analysis of the RC's publications data (provided by University of Leiden and the Helsinki University Library)

A written feedback from the aspects of: scientific quality, scientific significance, societal impact, innovativeness

- Strengths
- Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

2. Practises and quality of doctoral training

- Organising of the doctoral training in the RC. Description of the RC's principles for:
 - recruitment and selection of doctoral candidates
 - supervision of doctoral candidates
 - collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes
 - good practises and quality assurance in doctoral training
 - assuring of good career perspectives for the doctoral candidates/fresh doctorates
- Identification of the RC's strengths and challenges related to the practises and quality of doctoral training, and the actions planned for their development.

The additional material: TUHAT compilation of the RC's other scientific activities/supervision of doctoral dissertations

A written feedback from the aspects of: processes and good practices related to leadership and management

- Strengths
- Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

3. The societal impact of research and doctoral training

- Description on how the RC interacts with and contributes to the society (collaboration with public, private and/or 3rd sector).
- Identification of the ways to strengthen the societal impact of the RC's research and doctoral training.

The additional material: TUHAT compilation of the RC's other scientific activities.

A written feedback from the aspects of: societal impact, national and international collaboration, innovativeness

- Strengths
- Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

4. International and national (incl. intersectoral) research collaboration and researcher mobility

- Description of
 - the RC's research collaborations and joint doctoral training activities
 - how the RC has promoted researcher mobility
- Identification of the RC's strengths and challenges related to research collaboration and researcher mobility, and the actions planned for their development.

A written feedback from the aspects of: scientific quality, national and international collaboration

- Strengths
- Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

5. Operational conditions

- Description of the operational conditions in the RC's research environment (e.g. research infrastructure, balance between research and teaching duties).
- Identification of the RC's strengths and challenges related to operational conditions, and the actions planned for their development.

A written feedback from the aspects of: processes and good practices related to leadership and management

- Strengths
- Areas of development
- Other remarks
- Recommendations

6. Leadership and management in the researcher community

- Description of
 - the execution and processes of leadership in the RC
 - how the management-related responsibilities and roles are distributed in the RC
 - how the leadership- and management-related processes support
 - high quality research
 - collaboration between principal investigators and other researchers in the RC
 - the RC's research focus
 - strengthening of the RC's know-how
- Identification of the RC's strengths and challenges related to leadership and management, and the actions planned for developing the processes

7. External competitive funding of the RC

- The RCs were asked to provide information of such external competitive funding, where:
 - the funding decisions have been made during 1.1.2005-31.12.2010, and
 - the administrator of the funding is/has been the University of Helsinki
- On the e-form the RCs were asked to provide:
 - 1) The relevant funding source(s) from a given list (Academy of Finland/Research Council, TEKES/The Finnish Funding Agency for Technology and Innovation , EU, ERC, foundations, other national funding organisations, other international funding organisations), and
 - 2) The total sum of funding which the organisation in question had decided to allocate to the RCs members during 1.1.2005–31.12.2010.

Competitive funding reported in the text is also to be considered when evaluating this point.

A written feedback from the aspects of: scientific quality, scientific significance, societal impact, innovativeness, future significance

- Strengths
- Areas of development
- Other remarks
- Recommendations

8. The RC's strategic action plan for 2011–2013

- RC's description of their future perspectives in relation to research and doctoral training.

A written feedback from the aspects of: scientific quality, scientific significance, societal impact, processes and good practices related to leadership and management, national and international collaboration, innovativeness, future significance

- Strengths
- Areas of development

- Other remarks
- Recommendations

9. Evaluation of the category of the RC in the context of entity of the evaluation material (1-8)

The RC's fitness to the chosen participation category

A written feedback evaluating the RC's fitness to the chosen participation category

- Strengths
- Areas of development
- Other remarks
- Recommendations

Numeric evaluation: OUTSTANDING (5), EXCELLENT (4), VERY GOOD (3), GOOD (2), SUFFICIENT (1)

10. Short description of how the RC members contributed the compilation of the stage 2 material

Comments on the compilation of evaluation material

11. How the UH's focus areas are presented in the RC's research?

Comments if applicable

12. RC-specific main recommendations based on the previous questions 1-11

13. RC-specific conclusions

1.7 Evaluation criteria

The panellists were expected to give evaluative and analytical feedback to each evaluation question according to their aspects in order to describe and justify the quality of the submitted material. In addition, the evaluation feedback was asked to be pointed out the level of the performance according to the following classifications:

- outstanding (5)
- excellent (4)
- very good (3)
- good (2)
- sufficient (1)

Evaluation according to the criteria was to be made with thorough consideration of the entire evaluation material of the RC in question. Finally, in questions 1-4 and 9, the panellists were expected to classify their written feedback into one of the provided levels (the levels included respective descriptions, 'criteria'). Some panels used decimals in marks. The descriptive level was interpreted according to the integers and not rounding up the decimals by the editors.

Description of criteria levels

Question 1 – FOCUS AND QUALITY OF THE RC'S RESEARCH

Classification: Criteria (level of procedures and results)

Outstanding quality of procedures and results (5)

Outstandingly strong research, also from international perspective. Attracts great international interest with a wide impact, including publications in leading journals and/or monographs published by leading international publishing houses. The research has world leading qualities. The research focus, key research questions scientific significance, societal impact and innovativeness are of outstanding quality.

In cases where the research is of a national character and, in the judgement of the evaluators, should remain so, the concepts of "international attention" or "international impact" etc. in the grading criteria above may be replaced by "international comparability".

Operations and procedures are of outstanding quality, transparent and shared in the community. The improvement of research and other efforts are documented and operations and practices are in alignment with the documentation. The ambition to develop the community together is of outstanding quality.

Excellent quality of procedures and results (4)

Research of excellent quality. Typically published with great impact, also internationally. Without doubt, the research has a leading position in its field in Finland.

Operations and procedures are of excellent quality, transparent and shared in the community. The improvement of research and other efforts are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of excellent quality.

Very good quality of procedures and results (3)

The research is of such very good quality that it attracts wide national and international attention.

Operations and procedures are of very good quality, transparent and shared in the community. The improvement of research and other efforts are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of very good quality.

Good quality of procedures and results (2)

Good research attracting mainly national attention but possessing international potential, extraordinarily high relevance may motivate good research.

Operations and procedures are of good quality, shared occasionally in the community. The improvement of research and other efforts are occasionally documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of good quality.

Sufficient quality of procedures and results (1)

In some cases the research is insufficient and reports do not gain wide circulation or do not have national or international attention. Research activities should be revised.

Operations and procedures are of sufficient quality, shared occasionally in the community. The improvement of research and other efforts are occasionally documented and operations and practices are to some extent in alignment with the documentation. The ambition to develop the community together is of sufficient quality.

Question 2 – DOCTORAL TRAINING

Question 3 – SOCIETAL IMPACT

Question 4 – COLLABORATION

Classification: Criteria (level of procedures and results)

Outstanding quality of procedures and results (5)

Procedures are of outstanding quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and management are documented and operations and practices are in alignment with the documentation. The ambition to develop the community together is of outstanding quality. The procedures and results are regularly evaluated and the feedback has an effect on the planning.

Excellent quality of procedures and results (4)

Procedures are of excellent quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and management are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of excellent quality. The procedures and outcomes are evaluated and the feedback has an effect on the planning.

Very good quality of procedures and results (3)

Procedures are of very good quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and

management are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of very good quality.

Good quality of procedures and results (2)

Procedures are of good quality, shared occasionally in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and management are documented and operations and practices are to large extent in alignment with the documentation. The ambition to develop the community together is of good quality.

Sufficient quality of procedures and results (1)

Procedures are of sufficient quality, transparent and shared in the community. The practices and quality of doctoral training/societal impact/international and national collaboration/leadership and management are occasionally documented and operations and practices are to some extent in alignment with the documentation. The ambition to develop the community together is of sufficient quality.

Question 9 – CATEGORY

Participation category – fitness for the category chosen

The choice and justification for the chosen category below should be reflected in the RC's responses to the evaluation questions 1–8.

1. *The research of the participating community represents the international cutting edge in its field.*
2. *The research of the participating community is of high quality, but the community in its present composition has yet to achieve strong international recognition or a clear break-through.*
3. *The research of the participating community is distinct from mainstream research, and the special features of the research tradition in the field must be considered in the evaluation.* The research is of high quality and has great significance and impact in its field. However, the generally used research evaluation methods do not necessarily shed sufficient light on the merits of the research.
4. *The research of the participating community represents an innovative opening.* A new opening can be an innovative combination of research fields, or it can be proven to have a special social, national or international demand or other significance. Even if the researcher community in its present composition has yet to obtain proof of international success, its members can produce convincing evidence of the high level of their previous research.
5. *The research of the participating community has a highly significant societal impact.* The participating researcher community is able to justify the high social significance of its research. The research may relate to national legislation, media visibility or participation in social debate, or other activities promoting social development and human welfare. In addition to having societal impact, the research must be of a high standard.

An example of outstanding fitness for category choice (5)⁵

The RC's representation and argumentation for the chosen category were convincing. The RC recognized its real capacity and apparent outcomes in a wider context to the research communities. The specific character of the RC was well-recognized and well stated in the responses. The RC fitted optimally for the category.

- Outstanding (5)
- Excellent (4)
- Very good (3)
- Good (2)
- Sufficient (1)

The above-mentioned definition of outstanding was only an example in order to assist the panellists in the positioning of the classification. There was no exact definition for the category fitness.

⁵ The panels discussed the category fitness and made the final conclusions of the interpretation of it.

1.8 Timetable of the evaluation

The main timetable of the evaluation:

- | | |
|--|-----------------------|
| 1. Registration | November 2010 |
| 2. Submission of self-evaluation materials | January–February 2011 |
| 3. External peer review | May–September 2011 |
| 4. Published reports | March–April 2012 |
| - University level public report | |
| - RC specific reports | |

The entire evaluation was implemented during the university's strategy period 2010–2012. The preliminary results were available for the planning of the following strategy period in late autumn 2011. The evaluation reports will be published in March/April 2012. More detailed time schedule is published in the University report.

1.9 Evaluation feedback – consensus of the entire panel

The panellists evaluated all the RC-specific material before the meetings in Helsinki and mailed the draft reports to the evaluation office. The latest interim versions were on-line available to all the panellists on the Wiki-sites. In September 2011, in Helsinki the panels discussed the material, revised the first draft reports and decided the final numeric evaluation. After the meetings in Helsinki, the panels continued working and finalised the reports before the end of November 2011. The final RC-specific reports are the consensus of the entire panel.

The evaluation reports were written by the panels independently. During the editing process, the evaluation office requested some clarifications from the panels when necessary. The tone and style in the reports were not harmonized in the editing process. All the reports follow the original texts written by the panels as far as it was possible.

The original evaluation material of the RCs, provided for the panellists is attached at the end of the report. It is essential to notice that the exported lists of publications and other scientific activities depend how the data was stored in the TUHAT-RIS by the RCs.

2 Evaluation feedback

2.1 Focus and quality of the RC's research

- *Description of*
 - *the RC's research focus*
 - *the quality of the RC's research (incl. key research questions and results)*
 - *the scientific significance of the RC's research in the research field(s)*
- *Identification of the ways to strengthen the focus and improve the quality of the RC's research*

ASPECTS: Scientific quality, scientific significance, societal impact, innovativeness

The RC is a Centre of Excellence (CoE) in research and has already gained this status twice. Its research is focused around the Glanville fritillary butterfly that is an internationally known model system for understanding metapopulation dynamics. The ongoing research in this system has highlighted the benefits of long term research that incorporates the latest techniques that allows new questions to be considered. For instance, genomics has recently become a focus of the research, and because of a huge amount of background information on the system any new data can be interpreted in interesting ways.

The evaluation material amply demonstrates the quality of the group, as highlighted by research publications in top journals, high citation rates, a large contingent of students and overseas postdoctoral researchers, and impact generally in the scientific literature and applied areas. One of the strengths of the group is to combine mathematical ecology with a very strong empirical base, and of course now a genomic component as well. The panel is impressed by the ability of researchers in this group to stay at the cutting edge for a long period of time (most recently in the ecological genomics area). Another strength of the group is in the development of tools and theory for general use, such as the conservation software Zonation. This is an excellent way for research groups to gain wider recognition.

Because the group is very strong and well integrated, the panel does not have too many suggestions about possible future developments. Because the Glanville fritillary butterfly is not an ideal model system for functional analyses, the panel did wonder about making links with other Lepidoptera that might serve as a laboratory workhorse to test candidate genes, or at least make connections with groups doing such an undertaking. The panel also did wonder about whether it might be useful to place their model system within a comparative framework to a greater extent. But these are minor suggestions – the group is clearly highly successful, and the decisions made by the group are clearly the right ones.

Numeric evaluation: 5 (Outstanding)

2.2 Practises and quality of doctoral training

- *Organising of the doctoral training in the RC. Description of the RC's principles for:*
 - *recruitment and selection of doctoral candidates*
 - *supervision of doctoral candidates*
 - *collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes*
 - *good practises and quality assurance in doctoral training*
 - *assuring of good career perspectives for the doctoral candidates/fresh doctorates*
- *Identification of the RC's strengths and challenges related to the practises and quality of doctoral training, and the actions planned for their development.*
- *Additional material: TUHAT compilation of the RC's other scientific activities/supervision of doctoral dissertations*

ASPECTS: Processes and good practices related to leadership and management

There is a reasonable mix of local and overseas candidates in the group. The size of the PhD student group is modest given the availability of supervisory staff. The three-day meetings of PIs are a good strategy to ensure cohesion among group members and establish connections between staff and students. Core funding from the RC is obviously important for allowing students to travel to international meetings. The panel's experience of Finnish students is that they tend to be more insular than other European students, so we suspect that exposure to international interactions is important for this cohort.

The submission outlines an impressive list of good practices for supervision. The panel did wonder how student complaints were handled and also how non-adherence to these practices was evaluated and dealt with. In the panel's experience it is often a minority of troublesome students that can be disruptive to a group, and we wondered if this situation had been encountered.

The students graduating through the RC appear to have been successful afterwards in securing mostly academic employment. Given the importance of the research done by the group for conservation and management, the panel was wondering if any former students had secured positions in the applied conservation areas.

The panel was curious as to how student progress is evaluated. If progress is considered unsatisfactory, what are the options for the student? The panel was also wondering about long term employment prospects given that there seems to be a move to contracting the number of tertiary institutions in Finland.

In addition, it would be interesting to learn if the drop of PhD students (10 students per 8 PIs) is based on the funding situation or if that is a strategic choice to instead focus on a larger pool of postdocs.

Numeric evaluation: 4.5 (Excellent)

2.3 The societal impact of research and doctoral training

- *Description on how the RC interacts with and contributes to the society (collaboration with public, private and/or 3rd sector).*
- *Identification of the ways to strengthen the societal impact of the RC's research and doctoral training.*
- *Additional material: TUHAT compilation of the RC's other scientific activities.*

ASPECTS: Societal impact, national and international collaboration, innovativeness

A clear strength of the group is that Hanski's work has been widely recognized and also that it has had substantial impact on how management issues of metapopulations are handled. We were also impressed by the international applications of the work being completed by the conservation group in multiple countries through the work of Moilanen, Cabeza, Ovaskainen and others. It is also good to see a commitment to developing countries. This made the panel curious about whether any of the PhD students had been recruited from these countries.

The panel notes the comment about potential interactions with social scientists to improve impact and strengthen societal impact. The panel was curious as to whether group members were involved in integrated conservation and management efforts given the obvious expertise and contributions that could be made by the group. Also the panel wondered how broader impact of the group's activities were being monitored and documented.

The panel fully supports the efforts to establish a Master program on conservation sciences due to the expertise of the RC and also to meet an increasing interest among students for topics that relate to the global climate changes.

Numeric evaluation: 4 (Excellent)

2.4 International and national (incl. intersectoral) research collaboration and researcher mobility

- *Description of*
 - *the RC's research collaborations and joint doctoral training activities*
 - *how the RC has promoted researcher mobility*
- *Identification of the RC's strengths and challenges related to research collaboration and researcher mobility, and the actions planned for their development.*

ASPECTS: Scientific quality, national and international collaboration

The RC appears to have very strong national and international collaborations. A number of interactions are mentioned with groups around the world, and we note that there is strong track record in publishing with international collaborators as well as a past history of collaborative grants. Clearly the group is also very well connected to agencies with responsibility for environmental management in Finland.

The panel did wonder about the extent to which the group was involved in large EU initiatives around conservation. Also there was no mention in this section of international collaborations with developing countries, although such work was highlighted in a previous section. The panel is assuming that the group is involved in capacity building in such countries.

The level of collaboration at the student level is very high (65%). What precisely constitutes a collaboration, and how is this funded?

Numeric evaluation: 4 (Excellent)

2.5 Operational conditions

- *Description of the operational conditions in the RC's research environment (e.g. research infrastructure, balance between research and teaching duties).*
- *Identification of the RC's strengths and challenges related to operational conditions, and the actions planned for their development.*

ASPECTS: Processes and good practices related to leadership and management

The group is clearly well supported by facilities to complete experiments and monitor their key model system. The genomics and bioinformatics facilities look to have been expanded in recent times. The panel did wonder about whether it might sometimes be beneficial and easier to access international facilities on occasions, particularly given the likely demand in Finland, and a 1.4 MEUR grant does not necessarily get very far in the genomics game! The interaction with the core facility in terms of bioinformatics is a little bit unclear. What kind of service is the bioinformatics core providing and are there any campus bioinformatics working groups as spin-off interaction between core and the RC. Bioinformatics is becoming a bottleneck with many of the new possibilities in genomics. How is the RC preparing for future in this context – the panel notes that Liisa Holm is listed as a collaborator (transcriptome annotation), is there need for additional collaborations or will this be addressed within the RC?

One of the main challenges is that equipment becomes outdated very quickly, so there is always a need for ongoing investment in the absence of outsourcing. The panel notes that there is a comment about “strengthening our external collaborations”, and it would be interested in some elaboration around this issue. The panel was also wondering about the ability of the group to access facilities for other –omics analysis and expertise around analyses – combined approaches can often provide insights that are simply not available from one platform.

There is no discussion in the evaluation material around levels of administrative support although this featured in other RCs' material.

2.6 Leadership and management in the researcher community

- *Description of*
 - *the execution and processes of leadership in the RC*
 - *how the management-related responsibilities and roles are distributed in the RC*
 - *how the leadership- and management-related processes support*
 - *high quality research*
 - *collaboration between principal investigators and other researchers in the RC*
 - *the RC's research focus*
 - *strengthening of the RC's know-how*
- *Identification of the RC's strengths and challenges related to leadership and management, and the actions planned for developing the processes*

ASPECTS: Processes and good practices related to leadership and management

The group has had strong and experienced management through Hanski. The group has a sensible management strategy, designed to foster involvement by all PIs who form a Board, yet letting PIs maintain control and independence of their own research programs. The panel notes the comments about administrative support provided in this section.

The panel was curious about how often the Board meets, and whether there was representation from more junior members including students on the Board. Also how decisions are made about funding (what funding?) and support when there are conflicts and disagreements? By a vote? The panel was unclear about the significance of details provided about Moilanen in this section.

The panel notes that 80% is based on external funding that in itself is impressive but puts the research organization into a stressful position. Thus it would be interesting to learn more about the precautions and means taken to minimize a drop of funding.

2.7 External competitive funding of the RC

- *The RCs were asked to provide information of such external competitive funding, where:*
 - *the funding decisions have been made during 1.1.2005–31.12.2010, and*
 - *the administrator of the funding is/has been the University of Helsinki*
- *On the e-form the RCs were asked to provide:*
 - 1) *The relevant funding source(s) from a given list (Academy of Finland/Research Council, TEKES/The Finnish Funding Agency for Technology and Innovation, EU, ERC, foundations, other national funding organisations, other international funding organizations), and*
 - 2) *The total sum of funding which the organisation in question had decided to allocate to the RCs members during 1.1.2005–31.12.2010.*

Competitive funding reported in the text is also to be considered when evaluating this point.

ASPECTS: Scientific quality, scientific significance, societal impact, innovativeness and future significance

The funding base of the centre looks to be very solid, with strong contributions from the Academy of Finland and also the EU. In particular, having three European Research Council (ERC) grants within the same RC is impressive and is a good sign of the quality of the research within the RC. The group also receives smaller funds from a variety of groups and was successful in a joint US National Science Foundation (NSF) proposal. This appears to be a commendable and diverse level of support, including support from a number of applied agencies and regional groups. There appear to be no plans to secure additional funding from any new sources, or for areas of future development.

2.8 The RC's strategic action plan for 2011–2013

• *RC's description of their future perspectives in relation to research and doctoral training.*

ASPECTS: Scientific quality, scientific significance, societal Impact, processes and good practices related to leadership and management, national and international collaboration, innovativeness, future significance

The group seems to be content with a “business as usual” approach. Given that the group has been very successful in the past, this may well be the right approach, particularly if the group can continue to adapt as new methods and technologies are developed, and as there are new opportunities to use the strength of the group in interesting ways.

However if the CoE application is not successful, there is clearly a challenge to the cohesion of the group because core support and activities will no longer be supported. The evaluation material comments on the fact that the group represents a wide range of expertise, but without a common funding base there is always a risk that participants will retreat to research silos. The panel did wonder about contingency plans in this case, particularly around maintaining a management structure and fostering interactions.

2.9 Evaluation of the category of the RC in the context of entity of the evaluation material (1-8)

The RC's fitness to the chosen participation category.

Category 1. The research of the participating community represents the international cutting edge in its field.

Chosen category 1 (‘Research of the participating community represents the international cutting edge in its field’) seems appropriate given the contributions of the group to the international literature and the fact that the group is very well regarded. However, the group is also clearly having an impact on management and could also have been considered under a different category.

Numeric evaluation: 5 (Outstanding)

2.10 Short description of how the RC members contributed the compilation of the stage 2 material

All PIs contributed to the assembly of stage 2 material.

2.11 How the UH's focus areas are presented in the RC's research

Focus area 3: The changing environment – clean water

This RC is mentioned in the UH focus area specifically, being referred to as a Centre of Excellence under the changing environment theme.

2.12 RC-specific main recommendations

The panel wondered if the group might consider developing other Lepidoptera systems for ecological genetic studies, although this should be regarded only as a suggestion. The panel noted the relatively small number of postgraduate students in the group which seemed surprising given the group's international reputation. The degree to which the RC was involved in international conservation efforts was unclear even though there must be considerable scope for this type of work given the expertise in the

group. The panel wondered about the potential to interact further to develop additional -omics collaborations. There are few major recommendations because the RC is very much focused on “business as usual”.

2.13 RC-specific conclusions

This is a high quality RC with an outstanding reputation and long term Centre of Excellence funding.

2.14 Preliminary findings in the Panel-specific feedback

This is an outstanding group that has an international reputation and is very well funded. The RC has a surprisingly modest number of postgraduate students and there appear to be opportunities to grow the size of the group further particularly given recent funding success. The “business as usual” approach appears appropriate.

2.15 Preliminary findings in the University-level evaluation

This RC performs well on the bibliometrics and publication statistics, and demonstrates the value of establishing a well interacting research group over a long time period.

3 Appendices

- A. Original evaluation material
 - a. Registration material – Stage 1
 - b. Answers to evaluation questions – Stage 2
 - c. List of publications
 - d. List of other scientific activities
- B. Bibliometric analyses
 - a. Analysis provided by CWTS/University of Leiden
 - b. Analysis provided by Helsinki University Library (66 RCs)



International evaluation of research and doctoral training
at the University of Helsinki 2005-2010

RC-SPECIFIC MATERIAL FOR THE PEER REVIEW

NAME OF THE RESEARCHER COMMUNITY:

Centre of Excellence in Metapopulation Research (CoE MRG)

LEADER OF THE RESEARCHER COMMUNITY:

Professor Ilkka Hanski, Department of Biosciences, Faculty of Biological and Environmental Sciences

RC-SPECIFIC MATERIAL FOR THE PEER REVIEW:

- Material submitted by the RC at stages 1 and 2 of the evaluation
 - STAGE 1 material: RC's registration form (incl. list of RC participants in an excel table)
 - STAGE 2 material: RC's answers to evaluation questions
- TUHAT compilations of the RC members' publications 1.1.2005-31.12.2010
- TUHAT compilations of the RC members' other scientific activities 1.1.2005-31.12.2010
- Web of Science(WoS)-based bibliometrics of the RC's publications data 1.1.2005-31.12.2010 (analysis carried out by CWTS, Leiden University)

NB! Since Web of Science(WoS)-based bibliometrics does not provide representative results for most RCs representing humanities, social sciences and computer sciences, the publications of these RCs will be analyzed by the UH Library (results available by the end of June, 2011)



INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE
UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 1 MATERIAL (registration form)

1 RESPONSIBLE PERSON

Name: Hanski, Ilkka

E-mail:

Phone: +358919157745

Affiliation: Faculty of Biological and Environmental Sciences, Department of Biosciences

Street address: Viikinkaari 1, 00790 Helsinki

2 DESCRIPTION OF THE PARTICIPATING RESEARCHER COMMUNITY (RC)

Name of the participating RC (max. 30 characters): Centre of Excellence in Metapopulation Research

Acronym for the participating RC (max. 10 characters): CoE MRG

Description of the operational basis in 2005-2010 (eg. research collaboration, joint doctoral training activities) on which the RC was formed (MAX. 2200 characters with spaces): The RC consists of the Finnish Centre of Excellence in Metapopulation Research (MRG), which was established in 1992 and has currently 8 senior researchers, 17 post doctoral and independent researchers and 13 post graduate students. The supporting personnel include 2 research secretaries, 5 laboratory technicians, one programmer and one data base manager. MRG is a highly coherent, multidisciplinary and international research group, the current members representing 12 different nationalities. The PIs have complementary backgrounds and expertise in ecology, evolutionary biology, molecular biology, genomics, bioinformatics, mathematics and computer science. The multidisciplinary nature of the RC facilitates integration of modeling and empirical studies, integration of ecological and genomic research, as well as integration of basic research and applications to conservation. As a large international and multidisciplinary researcher community, MRG provides exceptional training opportunities for researchers at different career stages, from undergraduate students to starting independent researchers.

3 SCIENTIFIC FIELDS OF THE RC

Main scientific field of the RC's research: biological, agricultural and veterinary sciences

RC's scientific subfield 1: Ecology

RC's scientific subfield 2: Evolutionary Biology

RC's scientific subfield 3: Mathematical and Computational Biology

RC's scientific subfield 4: Biodiversity Conservation

Other, if not in the list: Bioinformatics, Genomics, Genetics



INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE
UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 1 MATERIAL (registration form)

4 RC'S PARTICIPATION CATEGORY

Participation category: 1. Research of the participating community represents the international cutting edge in its field

Justification for the selected participation category (MAX. 2200 characters with spaces): MRG is a leading research group internationally in metapopulation biology and in the application of metapopulation theory and ecological decision analysis to reserve planning and conservation. MRG has been awarded the position of centre-of-excellence in research by the Academy of Finland twice, in 2000-05 and 2006-11. A proposal for a third period is pending.

5 DESCRIPTION OF THE RC'S RESEARCH AND DOCTORAL TRAINING

Public description of the RC's research and doctoral training (MAX. 2200 characters with spaces): The Finnish Centre of Excellence in Metapopulation Research (MRG) is best known for its contributions to conceptual, theoretical and empirical research in metapopulation biology, encompassing the ecological, genetic and evolutionary consequences of natural and anthropogenic habitat loss and fragmentation and its implications for conservation. The 20-yr study of the metapopulation biology of the Glanville fritillary butterfly has become an internationally recognized model system, but we have also two other long-term and large-scale research projects addressing host-parasitoid spatial dynamics and plant-pathogen co-evolutionary dynamics. In recent years, we have become one of the leading groups in developing mathematical, computational and statistical approaches to the study of dispersal and ecological dynamics in heterogeneous environments. Most recently, research has expanded to genomics. At the conceptual level, we are contributing to the emerging field of eco-evolutionary dynamics in several empirical and modelling projects. We are developing cutting-edge applications of spatial ecology to conservation to address the consequences of habitat loss and fragmentation for biodiversity.

The RC provides an outstanding training environment for doctoral students. We have a range of daily, weekly, monthly and yearly activities that contribute to training both informally and formally. All our PhD students belong to the LUOVA graduate school at the Department of Biosciences, through which there is access to a comprehensive set of advanced courses and mobility grants. Students have their individual PhD committees, which meet once or twice a year. In addition to the courses organized by the graduate school, there is a wide range of training activities organized within the researcher community itself: journal clubs, peer-review of manuscripts (enhanced by the collective experience of PIs serving in various editorial boards), practice seminars for conference presentations, technical training sessions, co-supervision of MSc students, and participation in the organization of various events.

Significance of the RC's research and doctoral training for the University of Helsinki (MAX. 2200 characters with spaces): MRG is the largest research group in the major of Ecology and Evolutionary Biology at the Department of Biosciences. We make a strong contribution to the high-quality research in ecology and evolutionary biology, which is one of the strongest fields of science in the University of Helsinki. Apart from conducting basic science, we are committed to disseminating research results to the society at large. In particular, our researchers participate in various processes that advise about good conservation practices and we participate in actual conservation planning processes. The Zonation conservation prioritization framework and software, developed by Atte Moilanen, has been used in several



INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE
UNIVERSITY OF HELSINKI

RC-SPECIFIC STAGE 1 MATERIAL (registration form)

conservation projects around the world and is currently being applied in a very large project covering all of the forested land in Finland.

We contribute significantly to doctoral training in ecology and evolutionary biology through the large number of post graduate students in MRG. All our students are members of the LUOVA graduate school and participate actively in the training activities organized by the graduate school.

Keywords: metapopulation, spatial and eco-evolutionary dynamics, conservation biology, co-evolution, mathematical modelling, host-parasite interaction, dispersal, functional genomics, Glanville fritillary, reserve design

6 QUALITY OF RC'S RESEARCH AND DOCTORAL TRAINING

Justified estimate of the quality of the RC's research and doctoral training at national and international level during 2005-2010 (MAX. 2200 characters with spaces): We consider that MRG is a top research group in the world in metapopulation research, with particular strength in combining high-quality empirical studies and modeling. The scientific strength of MRG is highlighted by the three ERC grants that our PIs have obtained since 2007. A search of the key word "metapopulation" in the ISI Web of Science yields 3,948 papers and an h index of 121 (100,978 citations). Most papers (36%) have been published by US authors, but the University of Helsinki is the top institution (211 papers), primarily due to the research conducted in MRG. Our researchers have produced 256 peer-reviewed papers and book chapters in 2005-10, including 7 in Nature/Science/PNAS/PLoS Biology, as well as 8 books and edited volumes.

In the period 2005-10, we have trained 20 PhD students and have hosted 16 foreign post doctoral researchers. One sign of success in training is that three of our recent PhDs have obtained post doctoral positions in the very best universities in the UK and US (Stanford, Harvard and Oxford).

Comments on how the RC's scientific productivity and doctoral training should be evaluated (MAX. 2200 characters with spaces): We are happy with any method of assessment, including bibliometric analyses. Our publishing strategy is to publish the primary research in top international journals. We consider it important to publish non-technical articles, book chapters and books for the general audience and decision-makers in Finnish, though in this respect public presentations and participation in workshops, seminars and so forth are equally important.

LIST OF RC MEMBERS

NAME OF THE RESEARCHER COMMUNITY:			Centre of Excellence in Metapopulation Research		
RC-LEADER			I. Hanski		
CATEGORY			1		
	Last name	First name	PI-status (TUHAT, 29.11.2010)	Title of research and teaching personnel	Affiliation
1	Ahola	Virpi		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
2	Arponen	Anni		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
3	Banerjee	Sandip		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
4	Cabeza-Jaimejuan	Mar	x	Senior Researcher	Faculty of Biological and Environmental Sciences,
5	Chaozhi	Zheng		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
6	Couchoux	Christelle		Doctoral candidate	Faculty of Biological and Environmental Sciences,
7	de Jong	Maria Adriana		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
8	Duploux	Anne		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
9	Eklund	Johanna		Doctoral candidate	Faculty of Biological and Environmental Sciences,
10	Firmino Miraldo	Angela Andreia		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
11	Gripenberg	Sofia		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
12	Gurarie	Eliezer		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
13	Haag	Christoph		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
14	Hanski	Ilkka	x	Professor, Research director	Faculty of Biological and Environmental Sciences,
15	Harrison	Philip		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
16	Hellstedt	Paavo		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
17	Hornett	Emily		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
18	Hottola	Jenni		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
19	Kaartinen	Riikka		Doctoral candidate	Faculty of Biological and Environmental Sciences,
20	Karhunen	Markku		Doctoral candidate	Faculty of Biological and Environmental Sciences,
21	Katajisto	Jonna		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
22	Klemme	Ines		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
23	Koizumi	Itsuro		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
24	Koskinen	Jani Patrik		Doctoral candidate	Faculty of Biological and Environmental Sciences,
25	Kujala	Heini		Doctoral candidate	Faculty of Biological and Environmental Sciences,
26	Laine	Anna-Liisa	x	Senior Researcher (Academy Research Fellow)	Faculty of Biological and Environmental Sciences,
27	Latva-Karjanmaa	Tarja		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
28	Lehtomäki	Joona		Doctoral candidate	Faculty of Biological and Environmental Sciences,
29	Lehtonen	Rainer		University researcher	Faculty of Biological and Environmental Sciences,
30	Mattila	Anniina		Doctoral candidate	Faculty of Biological and Environmental Sciences,
31	Mitikka	Varpu		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
32	Moilanen	Atte	x	Professor	Faculty of Biological and Environmental Sciences,
33	Mononen	Tommi		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
34	Montreuil	Olivier		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
35	Niitepõld	Kristjan		Doctoral candidate	Faculty of Biological and Environmental Sciences,

36	Norros	Veera		Doctoral candidate	Faculty of Biological and Environmental Sciences,
37	North	Ace		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
38	Orsini	Luisa		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
39	Ovaskainen	Otso	x	Professor	Faculty of Biological and Environmental Sciences,
40	Pennanen	Juho		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
41	Ramiadantsoa	Tanjona		Doctoral candidate	Faculty of Biological and Environmental Sciences,
42	Roslin	Tomas	x	Senior Researcher (Academy Research Fellow)	Faculty of Biological and Environmental Sciences,
43	Saastamoinen	Marjo		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
44	Sarhan	Alia		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
45	Shchigel	Dmitry		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
46	Somervuo	Panu		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
47	Sundell	Janne	x	Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
48	Suvanto	Leena		Postdoctoral Researcher	Faculty of Biosciences, Department of Biological and Environmental Sciences
49	Tack	Ayco		Doctoral candidate - Postdoctoral Researcher	Faculty of Biological and Environmental Sciences,
50	Tas	Eva		University researcher	Faculty of Biological and Environmental Sciences,
51	van Nouhuys	Saskya	x	Senior Researcher (Academy Research Fellow)	Faculty of Biological and Environmental Sciences,
52	van Teeffelen	Astrid		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
53	Wheat	Christopher West		Senior Researcher (Academy Research Fellow)	Faculty of Biological and Environmental Sciences,
54	Viljanen	Heidi		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences
55	Wirta	Helena		Doctoral candidate	Faculty of Biosciences, Department of Biological and Environmental Sciences



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RC-SPECIFIC STAGE 2 MATERIAL

BACKGROUND INFORMATION

Name of the RC's responsible person: Hanski, Ilkka

E-mail of the RC's responsible person:

Name and acronym of the participating RC: Centre of Excellence in Metapopulation Research, CoE MRG

The RC's research represents the following key focus area of UH: 3. Muuttuva ympäristö - puhdas vesi –
The changing environment - clean water

Comments for selecting/not selecting the key focus area: University of Helsinki target programme 2011 defines the Centre of Excellence in Metapopulation Research under the key focus area The changing environment - clean water. Our research includes the effects of climate change as well as other environmental research within Biosciences as the category defines, but our research also includes genetic research in the key focus area The basic structure of life.

1 FOCUS AND QUALITY OF RC'S RESEARCH (MAX. 8800 CHARACTERS WITH SPACES)

- **Description of the RC's research focus, the quality of the RC's research (incl. key research questions and results) and the scientific significance of the RC's research for the research field(s).**

The primary focus of research in the Centre of Excellence in Metapopulation Research has been metapopulation biology, by which we mean the biology of species living in heterogeneous environments. We have been particularly interested in the ecological, genetic and evolutionary consequences of natural habitat fragmentation and anthropogenic habitat loss and fragmentation and its implications for conservation. In recent years, the scope of our research has expanded beyond traditional metapopulation biology, though the concepts and models from metapopulation biology continue to play a significant role. We have become one of the leading groups in developing mathematical, computational and statistical approaches to the study of dispersal and ecological dynamics in heterogeneous environments. We are contributing to the emerging field of eco-evolutionary dynamics, and our research has expanded to ecological genomics. We are developing cutting-edge applications of spatial ecology to conservation to address the consequences of habitat loss and fragmentation for biodiversity.

The current research conducted in the RC falls under the following general headings, which headings reflect very well also the research conducted during the evaluation period.

I Local adaptation, ecological and coevolutionary dynamics, and evolutionary radiations

II Genomics, genetics and functional molecular biology

III Mathematical ecology

IV Ecological decision analysis and applied conservation

I – Local adaptation, ecological and coevolutionary dynamics, and evolutionary radiations

The objective of this theme is to advance the general understanding of the dynamics of species in heterogeneous environments, with explicit attention to interactions between demographic dynamics and local adaptation, between behaviour and ecological dynamics in metacommunities, and between the dynamics of species' geographical ranges and evolutionary radiations. Many projects involve molecular studies and mathematical modelling. Our flagship project is the long-term study (since 1991)



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of ecological, genetic and evolutionary spatial dynamics of the Glanville fritillary butterfly, living in a network of 4,000 meadows in the Åland Islands in Finland. This system comprises a prime example of classic metapopulations. The long-term research has yielded several significant "firsts", including the demonstration of elevated risk of local extinction due to inbreeding, alternative stable states in metapopulation dynamics, unequivocal evidence for extinction threshold in metapopulation dynamics, and conclusive demonstration of effects of a single gene on population dynamics.

II – Genomics, genetics and functional molecular biology

The main objective is to develop and implement genomic and genetic tools for the study of natural populations of non-model species. Research on ecological genomics was started in collaboration with Prof. James Marden (Penn State, US) with a grant from the US NSF in 2005. In this project, we sequenced the transcriptome of the Glanville fritillary, which was the first metazoan transcriptome/genome that was de novo sequenced and subsequently successfully assembled using the next generation sequencing methods. We have subsequently continued the research in Helsinki and are currently sequencing the full genome of the Glanville fritillary. Next generation sequencing methods are currently used in four different projects in the RC. Integration of genetic and genomic tools into our research will allow us to ask completely new research questions while retaining our past strength in ecology.

III – Mathematical ecology

This theme has three main objectives. First, we aim to develop general theory in spatial ecology, genetics and evolution. Second, we aim to relate these theories to empirical data via new statistical approaches. Third, we will develop modelling tools to better connect decision analysis and conservation to basic population and community ecology. A particular strength of the RC has been the close integration of empirical research with mathematical modelling. We have substantial expertise in mathematical analyses of stochastic and deterministic spatiotemporal models. We have developed statistical methods for fitting hierarchical and process-based models to complex data in population ecology, community ecology and evolutionary biology. Most important achievements of our past work include the modelling of animal movements and the integration of dispersal and spatial ecological and evolutionary dynamics.

IV – Ecological decision analysis and applied conservation

This theme has four objectives. First, we will develop methods for conservation prioritization that integrate across multiple environments and levels of biological organization. Second, we will consolidate the linkage between conservation planning and cutting-edge species-level and community-level spatial modelling. Third, we will improve the understanding of how climate change should be accounted for in conservation. Fourth, we develop methods for the evaluation of conservation outcomes. In general, we have developed and clarified the concepts of conservation resource allocation and spatial conservation prioritization. We have investigated how to account for spatial connectivity, landscape dynamics and climate change in conservation, and we have implemented these methods in publicly available software. Our best-known software, Zonation, combines capabilities not available in other software packages: ability to analyze multimillion element landscapes, multiple ways of addressing species-specific connectivity requirements, uncertainty analysis, and balancing of alternative land uses.

The CoE MRG is the largest research group in the major of Ecology and Evolutionary Biology at the Department of Biosciences in the University of Helsinki. A defining and exceptional feature of this RC is genuine multidisciplinary collaboration between researchers with training and background in ecology, molecular biology, genomics, bioinformatics, mathematics and computer science. We make significant



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contributions to the high-quality research in ecology and evolutionary biology, which is one of the strongest fields of science in the University of Helsinki. A search of the key word "metapopulation" in the ISI Web of Science yields 4,165 papers and an h index of 125 (106,182 citations). Most papers (37%) have been published by US authors, but the University of Helsinki is the top institution (214 papers), primarily due to research conducted in the RC. Our researchers have published 256 peer-reviewed papers and book chapters in 2005-10, including 7 in Nature/Science/PNAS/PLoS Biology, as well as 8 books and edited volumes. The scientific strength of the RC is highlighted by the three ERC grants that our PIs have obtained since 2007, and by three of our recent PhDs having obtained post doctoral positions in the very best universities in the UK and US (Stanford, Harvard and Oxford). Finally, concerning the application of our research results, we are committed to disseminating information about good conservation practices and we participate in actual conservation planning processes. The Zonation conservation prioritization framework and software have been used in several conservation projects around the world and are currently being applied in a very large project covering all of the forested land in Finland.

- **Ways to strengthen the focus and improve the quality of the RC's research.**

The RC has 8 PIs with their own students and post docs and partly own funding. However, in contrast to many other CoE in Finland, the CoE MRG is very coherent. We are located at one department, meaning that we have daily interactions. This is a part of our strength: though we have students and researchers with very different backgrounds, we constantly learn from each other and develop overlapping research interests, including spatial ecology and evolution in heterogeneous environments, integration of empirical research with mathematical modeling, and the use of genomics tools and approaches in ecological research. We aim at strengthening the shared interests and take advantage of our collective expertise. A good example is ecological genomics, which was started in the Glanville fritillary project but is now employed in three other projects as well. Though we cannot become leaders in the methods of ecological genomics, we have an opportunity to develop high-profile applications that are based on exceptional ecological knowledge of the study systems.

2 PRACTISES AND QUALITY OF DOCTORAL TRAINING (MAX. 8800 CHARACTERS WITH SPACES)

- How is doctoral training organised in the RC? Description of the RC's principles for recruitment and selection of doctoral candidates, supervision of doctoral candidates, collaboration with faculties, departments/institutes, and potential graduate schools/doctoral programmes, good practises and quality assurance in doctoral training, and assuring good career perspectives for the doctoral candidates/fresh doctorates.

Recruitment of doctoral candidates

Recruitment of students takes place both via international advertisements based on a competitive application process and through direct contact by interested students, who have previously been in touch with members of the RC during courses, internships and research assistance positions. This has allowed us to recruit a good sample of both national (60%) and foreign (40%) candidates.

The 9 different nationalities represented in the RC indicate that it is an attractive training site internationally. We have an experienced staff that assists researchers arriving from abroad in all aspects of relocation. Integration is further promoted by the fact that all joint activities as well as everyday communication in the group is in English. This also benefits Finnish students who seek international positions after receiving their PhDs.



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Supervision of doctoral candidates

The RC has currently 10 PhD students, supervised by 8 PIs. During 2005-2010, 17 students completed their PhD thesis in the RC. Although our PIs are at different stages of their careers, they all are actively involved in supervision of doctoral candidates. Several students have co-supervisors either within the RC (4), in other departments (1), or at foreign research institutions (4).

In addition to regular one-on-one meetings between the student and the supervisor, many PIs meet weekly as a group with their students. This adds support to supervision and enhances communication between the team members. The RC provides training to students on many skills, such as preparation of presentations, peer-review of manuscripts, organization of scientific events, supervision of MSc students, etc. Although the style of supervision varies among the PIs, the RC works together to establish common support and good practices. During our meetings, when the entire RC travels off-campus for three days, questions related to supervision are discussed and new practices are developed. Any potential problems related to supervision are discussed and debated. The RC provides the same opportunities to all students, including equal salary.

Mobility and networking are promoted at the level of PhD students. As a part of their training PhD students are strongly encouraged to attend international conferences and workshops as well as to stay abroad for a longer time if necessary, for which several funding opportunities exist. All students are entitled to at least one international conference trip per year from the core funding of the RC.

Collaboration with faculties, departments/institutes, graduate school

All our PhD students belong to the graduate school LUOVA at the Department of Biosciences (<http://www.helsinki.fi/biosci/luova/>). In the period 2005-10, students from our RC have been especially active in organizing activities within our department as well as interdepartmental activities, including the Spring Symposium, the Luova Day, and the weekly seminar for PhD students. Additionally, the graduate school organizes activities to enhance collaboration between departments and institutes, with reciprocal lab visits. This has resulted in a number of active collaborations between our students and researchers from other institutes. For example, 40% of the students have had collaborators within the University and 40% have had collaboration outside the University (typically with various research institutes).

Good practices and quality assurance in doctoral training

Guidelines for good practice in supervision have been established and are enforced by the graduate school, which requires the student to write a plan for their studies and for the research project, and to update these plans once a year. These plans are discussed in the annual meeting with an advisory board consisting of two members and the supervisor. The plans include the timing of compulsory and optional courses, planned visits abroad, planned chapters of the thesis with potential titles for papers and likely authors, recognition of conflicts and potential weaknesses, alternative plans in the case of risky projects, and so forth. The student is also expected to identify problems in executing the project as well as problems with supervision. The system of advisory boards for PhD students was started in 2008, after which all our students have had such boards.

Additional guidance concerning doctoral studies is offered at the RC and team levels as described above. Perhaps most importantly, the RC contributes to the training of students as researchers by providing an active, international working environment. The RC encourages regular journal clubs, which strengthen interactions between students with similar research interests and makes sure that no student becomes isolation.



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The CoE MRG has published an annual report since 1999, which includes information on the success of the students (<http://www.helsinki.fi/science/metapop/Publications.htm>). These data reflect the quality of supervision. Most importantly, our students have mostly completed their PhD degree in about 4 years as intended. In the period 2005-10, our students have won four times the prize for the best presentation in the annual Spring Symposium for students in the LUOVA graduate school (based on the assessment by external evaluators). Several of the PIs in the RC have been recognised as good supervisors with various awards.

Assuring good career prospects for the doctoral candidates

Most PhD students in the RC wish to pursue a career in research. Moving to a post doc position after finishing the PhD thesis is facilitated by the network of collaborators of the RC. Often students continue as post docs at a collaborator's lab. The RC offers training in grant applications, which has been successful as several students have been obtained postdoctoral grants from the Academy of Finland and the Finnish Cultural Foundation. In the LUOVA graduate school, students may take courses in job search and preparing applications (e.g. recent courses entitled "Scientist's survival skills" and "How to prepare for job application").

Of the 17 PhDs graduating from the RC in the period 2005-10, 13 have continued in academia in post doctoral positions in Finland (3) and abroad (10; including Harvard, Oxford and Stanford). Others have been employed in education (1), administration (2) and in the private sector (1).

- RC's strengths and challenges related to the practises and quality of doctoral training, and the actions planned for their development.

Our major strength is that the RC is a large, multidisciplinary and international group including a wide range of expertises. The PhD students have a strong support network, including the supervisor, team members, RC, the advisory group, the LUOVA graduate school and the Department of Biosciences. One challenge for interactions is lack of space, as many of our PIs share offices. There is only a small meeting room available for the entire department, and hence small-group meetings often take place in the coffee room, a noisy environment. During the evaluation period the number of PhD students has decreased in relation to the number of post docs. One challenge is to involve post docs in supervision and by profiting from the added knowledge they bring to the group.

With an increasing number of supervisors, it is inevitable that students receive somewhat different treatment and face different problems. We aim to alleviate potential problems by establishing group principles that govern major issues related to supervision.

3 SOCIETAL IMPACT OF RESEARCH AND DOCTORAL TRAINING (MAX. 4400 CHARACTERS WITH SPACES)

- Description of how the RC interacts with and contributes to the society (collaboration with public, private and/or 3rd sector).

A standard vision of the societal impact of basic science is that high-quality science will eventually make an impact on the society, albeit often with a substantial time delay. For example, during the past 20 years the concept of population dynamical connectivity, which is a key concept in metapopulation biology (pioneered by our RC), has been adopted into the national legislation in many countries and in the operating protocols of global environmental NGOs. The Director of the RC is well recognized both nationally and internationally, and his science has indirectly influenced environmental decision making around the world.



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Such impacts will continue to emerge, but the research in the RC has also a more immediate link from cutting-edge basic science to land use decision-making and zoning. Applied research and software developed within the RC is used in environmental decision making both in Finland and internationally. Nationally, professor Moilanen's team is strongly involved in a major country-wide project, including targeting of conservation and restoration of forests and peat lands, with broad-based institutional participation from the Finnish environmental administration. Science done in the RC has thus a direct impact on conservation decision-making in Finland, including the allocation of 30M€/yr for forest conservation. Recent work conducted in the RC on regional land use zoning is influential in targeting peat extraction away from ecologically most valuable peat lands. Conservation software developed in the RC are applied or have been applied in similar large-scale conservation prioritization projects in New Zealand, Australia, Madagascar, UK, and USA.

Professor Ovaskainen is the Vice Chair of the Finnish Natural Heritage Foundation, which protects old-growth forests using money donated for this purpose by private individuals. Professor Cabeza's team participates extensively in European projects, especially in the context of climate change, with strong links to policy makers. Additionally, we are increasingly involved in research and teaching in developing countries (Madagascar, Mozambique, Tanzania) in collaboration with various ministries, NGOs and universities. Dr. Laine is a board member of The National Plant Protection Society, which has significant impact on agricultural practices in Finland as it is consulted by agricultural agencies advising farmers on how to best protect their crops against pests and pathogens in a sustainable manner. These activities contribute to general goals of sustainable development.

There are several examples of the involvement of the members of our RC with local communities in Finland. In the Åland Islands, the Glanville fritillary field study is well known, and related to that our RC has participated in the teaching of environmental ecology in local primary schools. Dr Roslin has engaged the country-wide 4H club in a major study about the influence of changing farming practices on dung beetles. While doing their PhD projects, many students have participated in the above-mentioned activities.

- Ways to strengthen the societal impact of the RC's research and doctoral training.

We consider that we have substantial influence in the society taking into account that the research done in the RC is primarily basic science. There is however always scope for improvement. Many members of the RC community written articles for newspapers and magazines, but we could do more of that. We could actively seek collaboration with social scientists, which would be highly relevant for our conservation-related research. Finally, we are teaching as a group an extensive course for Finnish and foreign undergraduate students on conservation biology in fragmented landscapes (<http://www.helsinki.fi/science/metapop/CBFL.htm> iii). We could expand this course. Related to this, professor Cabeza is exploring the possibility of establishing a Master Program on conservation sciences at the Department of Biosciences.

4 INTERNATIONAL AND NATIONAL (INCL. INTERSECTORAL) RESEARCH COLLABORATION AND RESEARCHER MOBILITY (MAX. 4400 CHARACTERS WITH SPACES)

- Description of the RC's research collaborations and joint doctoral training activities and how the RC has promoted researcher mobility.

Our research is highly international and each PI has minimally three strong ongoing foreign collaborations. In the past 5 years, 218 papers out of the total of 303 papers published in the RC had at least one foreign co-author. All personnel, including PhD students, have been entitled to a "no questions



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asked" yearly research visit or major conference visit abroad using funding from the RC (CoE core funding).

The Glanville fritillary project (PI Hanski) had a major joint NSF Biocomplexity grant with Prof. James Marden (Penn State, US) during the reporting period (until 2008). At present, this project (PIs Lehtonen, Frilander and Hanski) involves a large number of both national and international collaborators, of which the most significant ones are Dr. Petri Auvinen (Institute of Biotechnology, Helsinki) on development of new genomic applications, Prof. Liisa Holm (Institute of Biotechnology, Helsinki) on transcriptome functional annotation, Prof. Esko Ukkonen and Veli Mäkinen (Department of Computational Sciences, Helsinki) on development of computational assembly tools for sequencing data, and Janna Saarela (FIMM, Helsinki) on high-throughput genotyping. Internationally, we collaborate with Daniel Lawson (EBI and Ensembl Genomes) and Prof. Jussi Taipale (Karolinska Institutet, Sweden). The host-pathogen project collaborates actively with the lab of Dr Peter Thrall and Jeremy Burdon at CSIRO, Australia, as well as with the European powdery mildew sequencing consortium.

The development of statistical methods in the mathematical ecology group (PI Ovaskainen) has been based on collaboration with a large number of national and international data providers (e.g. in the context of NERC funded UK Pop Net working groups). Theoretical and mathematical modeling has involved collaboration with researchers in theoretical physics and mathematics (e.g. University of Leeds, UK; Hebrew University of Jerusalem, Israel). The conservation biology group collaborates with the EU Joint Research Centre, several major EU framework projects (e.g. ALARM, SCALES), the Commonwealth research hub in Applied Environmental Decision Analysis (U. Queensland, Australia), the Centre of Excellence in Environmental Decisions (U. Queensland, Australia), the Cambridge Conservation Science Group and the Biodiversity and Climate Change Lab (Spain). Nationally the members of the conservation group collaborate with practically the entire Finnish environmental administration.

Statistically, 40% of our PhD students have intersectoral collaborators, 65% have international collaborators, 45% have national collaborators outside the University of Helsinki and 40% have collaborators within the University but outside the RC. All our PhD students belong to the LUOVA graduate school, through which there is access to mobility grants. Some of our students belong to the Finnish Graduate Schools of Bioinformatics or Computational Sciences, which provide strong links to other national universities.

- RC's strengths and challenges related to research collaboration and researcher mobility, and the actions planned for their development.

Our RC has extensive international and national research collaborations, as explained above. This is also reflected by the large number of foreign citizens employed by the RC, representing 19 nationalities in the period 2005-10. These contacts provide students and researchers access to international networks.

As a challenge we note that Finland is small country and therefore the national research environment is limited. While our RC is competitive in attracting PhD students, there are limited equally attractive post doc opportunities in Finland. This is very different from the situation in bigger countries (to say nothing of the USA), where there are many strong research groups in each scientific field and where researcher mobility between universities is strongly encouraged. While all our PIs and many of our graduates have spent long periods of time abroad, especially researchers with families may find it preferable to remain in Helsinki. This restriction to mobility is of course not specific to our RC but to Finland in general.



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5 OPERATIONAL CONDITIONS (MAX. 4400 CHARACTERS WITH SPACES)

- Description of the operational conditions in the RC's research environment (e.g. research infrastructure, balance between research and teaching duties).

Our RC includes expertise in many fields facilitating multidisciplinary approaches and providing a versatile training environment. To be able to employ a range of methodologies from field studies to molecular biology and to mathematical modeling we have obtained access the shared infrastructure at the Viikki campus and facilities available elsewhere through close collaboration. We have long-term experience (since 1993) in conducting annual surveys and sampling of the Glanville fritillary metapopulation in the Åland Islands. We have large-scale rearing and phenotyping facilities of larvae and adult butterflies at the Lammi Biological Station, with a 600 m² purpose-built laboratory that we have used since 2007. Experiments on adult butterflies are conducted in two large (30 by 30 m) outdoor cages. We also maintain basic laboratory and greenhouse facilities and a third large outdoor population cage at an agricultural research station and school in the Åland Islands. Additionally, the University of Helsinki supports a well equipped research station in Madagascar, where we do both research and teaching.

The use of genomic tools in ecological and evolutionary biology has expanded rapidly in the RC following recent major advances in DNA sequencing and other molecular biology technologies. The availability of genomic information opens up completely new possibilities to explore old research questions, which have remained unanswered because of lack of tools. We use the shared laboratory facilities (Laboratory of Molecular Ecology and Systematics, MES laboratory) hosted by the Department of Biosciences. MES offers equipment, assistance and protocols for commonly used molecular methods. The critical high-throughput instrumentation needed in genome-wide approaches is available and coordinated by the campus-wide core unit (DNA Sequencing and Genomics laboratory) housed in the Institute of Biotechnology. With integrated bioinformatics facilities and experienced laboratory technical personnel the above facilities comprise a competitive and supportive infrastructure. Both facilities play an active role in undergraduate and post-graduate training, which benefits also our students. To take full advantage of the wealth of new genomic data and to stay at the forefront of genomic research, it is necessary both to maintain the current level of instrumentation and to scale up genotyping and genomic sequencing to high-throughput and novel platforms. In this respect the recent decision by the Academy of Finland and the University of Helsinki (GenoEvo, Hanski 1/2011, 1.4M €) to provide funding for novel instrumentation for integrated sequencing and genotyping services is very welcome and significant.

Our RC has invested human and financial resources for data management (population and phenotype database EarthCape, genetic database system Progeny, and an agreement about collaboration with the Ensembl Genomes project in EBI) and for facilities in mathematical and computational methods.

- RC's strengths and challenges related to operational conditions, and the actions planned for their development.

All technical facilities needed for our research are available at the Viikki campus or through our collaborators. The most important strength is the combination of facilities and services maintained by the RC itself (human and technical resources), shared core facilities available at the campus, and facilities available through our close national and international collaborators. Most of our projects involve field and non-molecular laboratory studies, but these studies, though large and demanding operations by themselves, pose no particular problems or risks. The major risks and the greatest challenges are in the genetic and genomic research, especially in the case of the Glanville fritillary genome and genetics projects. Regular upgrades and new investments for laboratory equipment and computing facilities are needed to maintain our position in the front-line of ecological and evolutionary



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research. Although significant improvement in the local services will take place during this year, we are in parallel strengthening our external collaborations to spread the risks.

6 LEADERSHIP AND MANAGEMENT IN THE RESEARCHER COMMUNITY (MAX. 4400 CHARACTERS WITH SPACES)

- Description of the execution and processes of leadership in the RC, how the management-related responsibilities and roles are distributed in the RC and how the leadership- and management-related processes support high quality research, collaboration between principal investigators and other researchers in the RC, the RC's research focus and strengthening of the RC's know-how.

The RC (CoE MRG) has 8 senior researchers, 14 post doctoral and independent researchers and 10 post graduate students representing 9 different nationalities. The supporting personnel consist of 2 research secretaries, 5 laboratory technicians, one programmer and one data base manager. Most researchers and students work in the same block of offices at the Department of Biosciences, which facilitates daily interactions. Each PI leads his/her own research group independently both in terms of the science and funding, though the many common research interests and the complementary expertises of the PIs encourage a high level of collaboration.

The PIs form the Board which makes all significant decisions, including the allocation of funding. We have a shared office for the CoE with two research secretaries, which facilitates effective management of the entire RC and the many research projects. The RC has a good track record in management. We have produced an annual report since 1999 and have an informative web-site (www.helsinki.fi/science/metapop). We have started a Wiki, a blog and Twitter posts.

The Director of the RC, professor Ilkka Hanski established the MRG in 1992. He has much leadership and management experience. He has served in many scientific advisory bodies and agencies, including the Chair of the Ecology and Evolutionary Biology panel of ERC, Member of EASAC (European Academies, Science Advisory Council) working group, Member of the Advisory Board of the UK Population Biology Network, and Member of the SAB of NCEAS (National Center for Ecological Analysis and Synthesis) in Santa Barbara, US. The Vice Director professor Atte Moilanen has university degrees in computer science (MSc, 1992), applied mathematics (techn. lic., 1998) and ecology (PhD, 1999). He was appointed into a professorship in 2010 and received an ERC Starting grant in 2010.

- RC's strengths and challenges related to leadership and management, and the actions planned for developing the processes.

The entire RC is located at the Department of Biosciences, which greatly facilitates management. Professor Hanski has been the Director since the establishment of MRG in 1992. We have discussed the possibility of changing the Director, but so far there has been no wish to do so. Due to the multidisciplinary nature of his research, professor Ovaskainen is involved in a wide range of the CoE:s research, and will become the new Vice Director from 2012. All the PIs participate actively in the Board meetings, and all important decisions are made collectively in these meetings. The shared office with two research secretaries is a definite asset, without which the RC could not be run in the present manner. We do not perceive any short-term challenges in the leadership nor in the management. However, given that 80% of our funding is competitive external funding, it is not possible to plan the research beyond 2-3 years. Apart from our CoE funding from the Academy of Finland, funding is obtained by individual PIs, who are naturally responsible for developing the research in their own group.

7 EXTERNAL COMPETITIVE FUNDING OF THE RC



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- Listing of the RCs external competitive funding, where:
 - the funding decisions have been made during 1.1.2005-31.12.2010, and
 - the administrator of the funding is/has been the University of Helsinki

- Academy of Finland (AF) - total amount of funding (in euros) AF has decided to allocate to the RC members during 1.1.2005-31.12.2010: 8966562

- Finnish Funding Agency for Technology and Innovation (TEKES) - total amount of funding (in euros) TEKES has decided to allocate to the RC members during 1.1.2005-31.12.2010:

- European Union (EU) - total amount of funding (in euros) EU has decided to allocate to the RC members during 1.1.2005-31.12.2010: 256940

- European Research Council (ERC) - total amount of funding (in euros) ERC has decided to allocate to the RC members during 1.1.2005-31.12.2010: 3980420

- International and national foundations – names of international and national foundations which have decided to allocate funding to the RC members during 1.1.2005-31.12.2010, and the amount of their funding (in euros).
 - names of the foundations: Ella and Georg Ehrnrooth foundation
 - Maj and Tor Nessling Foundation
 - Kone Foundation
 - Oskar Öflund Foundation
 - European Science Foundation
 - Carl Cedercreutz scholarship fund
 - total amount of funding (in euros) from the above-mentioned foundations: 97294

- Other international funding - names of other international funding organizations which have decided to allocate funding to the RC members during 1.1.2005-31.12.2010, and the amount of their funding (in euros).
 - names of the funding organizations: The National Science Foundation Biocomplexity award
 - total amount of funding (in euros) from the above-mentioned funding organizations: 191970

- Other national funding (incl. EVO funding and Ministry of Education and Culture funded doctoral programme positions) - names of other national funding organizations which have decided to allocate funding to the RC members during 1.1.2005-31.12.2010, and the amount of their funding (in euros).
 - names of the funding organizations: Ministry of Education and Culture funded doctoral programme positions
 - Southwest Finland Regional Environmental Centre
 - Pirkanmaa Regional Environmental Centre
 - South Ostrobothnia Centre for Economic Development, Transport and Environment
 - Southwest Finland Centre for Economic Development, Transport and Environment
 - HUCH Skin and allergy hospital EVO funding
 - Ministry of Education and Culture CIMO
 - Ministry of Agriculture and Forestry



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RC-SPECIFIC STAGE 2 MATERIAL

- total amount of funding (in euros) from the above-mentioned funding organizations: 864200

8 RC'S STRATEGIC ACTION PLAN FOR 2011–2013 (MAX. 4400 CHARACTERS WITH SPACES)

- Description of the RC's future perspectives in respect to research and doctoral training.

Our RC, the Metapopulation Research Group (MRG) has been awarded the position of Centre-of-Excellence (CoE) in research by the Academy of Finland in 2000-2005 and 2006-2011. The CoE position and funding have allowed us to create and maintain a large research group in which team leaders with very different backgrounds and expertises are able to collaborate effectively and to achieve ground-breaking research results both independently and collectively. Given the importance of the CoE position, a central part of our strategic action plan is to renew this position for the period of 2012-17. At this point, we have passed the first stage of the evaluation process. Our CoE application for 2012-2017 involves the current 8 PIs (Director Hanski, Vice Director Ovaskainen, Cabeza, Frilander, Laine, Lehtonen, Moilanen and van Nouhuys). The planned new CoE will continue our current practices in management, including the production of an annual report and the maintenance of web-site (www.helsinki.fi/science/metapop). We will continue to have a 3-day annual meeting outside Helsinki (since 1999), a weekly seminar (attended by the whole group, typically 30-40 people), and a daily coffee break.

The PIs hold complementary expertise, covering ecology and evolutionary biology, molecular biology, functional genomics, ecological decision analysis, computer science, and mathematical biology. Building on this expertise, the new CoE will focus on four research themes described in Section 1: i) Local adaptation, ecological and coevolutionary dynamics, and evolutionary radiations, ii) Genomics, genetics and functional molecular biology, iii) Mathematical ecology, and iv) Ecological decision analysis and applied conservation. Each PI will lead his/her own research group independently both in terms of the science and funding, though the common research interests of and the complementary expertise among the PIs will encourage a high level of collaboration.

If our current CoE position will not be renewed, we cannot maintain the secretarial office nor some other key functions of the group (e.g. support for conference trips, relatively expensive annual meeting), with inevitable negative impacts to the coherence and functioning of the RC. However, the funding for many of the planned research projects has been secured for 2011-2013 through three ERC grants and other existing funding. Therefore, even without the renewal of the CoE position, we will be able to maintain a high level of scientific activity at least in the short term.

As the RC is a large, multidisciplinary and international group covering a wide range of expertise, it will provide an outstanding training environment for researchers at different stages of their careers. Training also applies to the PIs, who range from very experienced (Hanski) to well established (Frilander, Moilanen, Ovaskainen) to researchers in the early stage of their career as a PI. All our PhD students will continue to belong to the LUOVA graduate school, through which there is access to a comprehensive set of advanced courses and mobility grants. Students have their individual PhD committees, which meet once or twice a year. As a part of their training both PhD students and post docs are strongly encouraged to attend international conferences and workshops as well as have longer stays abroad when necessary. We expect to maintain the current high level of international collaboration, including foreign researchers visiting the RC for shorter and longer periods (confirmed visitors in the spring 2011 include prof. Russell Lande, prof. Joel Cohen and Dr. Justin Travis). The RC will continue to teach (as a group, including PhD students and post docs) the 9 ECTS credit course entitled Conservation Biology in Fragmented Landscapes to Finnish and foreign undergraduate students.



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We expect our societal impact to stay at the current high level, especially given that our planned CoE has direct and immediate links from cutting-edge basic science to land use decision-making. One of our PIs (Moilanen) has recently been appointed into a professorship partly funded by the Ministry of Environment. Moilanen is developing software and coordinating their implementation in forest and peat land conservation programs across Finland.

9 SHORT DESCRIPTION OF HOW THE RC MEMBERS HAVE CONTRIBUTED TO THE COMPILATION OF THE STAGE 2 MATERIALS (MAX. 1100 CHARACTERS WITH SPACES).

Following a meeting in which we discussed the contents of the material requested, we divided the different sections among the PIs who belong to the RC (CoE MRG). The PIs drafted the text either alone or in small groups for the particular sections: Section 1 by Hanski, Section 2 by Cabeza and Laine, Section 3 by Moilanen, Cabeza and Laine, Section 4 by Moilanen, van Nouhuys and Lehtonen, Section 5 by Lehtonen, Section 6 by Hanski, section 7 by research secretary Viia Forsblom, and section 8 by Ovaskainen. Hanski edited the material, which was afterwards commented by the PIs. The research secretary Forsblom submitted the material for the evaluation.



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1 Analysis of publications

- Associated person is one of Virpi Ahola , Anni Arponen , Sandip Banerjee , Mar
Cabeza-Jaimejuan , Chaozhi Zheng , Christelle Couchoux , Maeike De
Jong , Anne Mireille Regine Duplouy , Johanna Eklund , Andreia Miraldo ,
Sofia Gripenberg , Eliezer Gurarie , Christoph Haag ,
Ilkka Hanski , Philip John Harrison , Paavo Hellstedt , Emily
Anne Hornett , Jenni Hottola , Riikka Kaartinen , Markku Karhunen ,
Jonna Katajisto , Ines Klemme , Itsuro Koizumi ,
Patrik Koskinen , Heini Kujala , Anna-Liisa Laine , Tarja
Birgitta Latva-Karjanmaa , Joonas Lehtomäki , Rainer Juhani Lehtonen ,
Anniina Mattila , Varpu Mitiikka , Atte Moilanen , Tommi Mononen ,
Olivier Montreuil , Kristjan Nitsepöld , Veera Maria Norros ,
Ace North , Luisa Orsini , Oksa Ovaskainen , Juho Pennanen ,
Saastamoinen , Tarjona Harivelo Ramiadantsoa , Tomas Roslin , Marjo Anna Kaarina
Alia Sarhan , Dmitry Schigel ,
Panu Juhani Somervuo , Janne Sundell , Leena Suvanto ,
Aycio Jerome Michel Tack , Eva Tas , Saskya van Nouhuys ,
Vijanen , Astrid Jacoba Alida van Teeffelen , Christopher West Wheat , Heidi
Helena Kristiina Wirta ,

Publication type	Publication year						Total Count 2005 - 2010
	2005	2006	2007	2008	2009	2010	
A1 Refereed journal article	36	40	36	59	38	39	248
A2 Review in scientific journal			1	3	1	5	10
A3 Contribution to book/other compilations (refereed)	1	5		3	13		22
A4 Article in conference publication (refereed)	1		1	4			6
B1 Unrefereed journal article	1	1			1		3
B2 Contribution to book/other compilations (non-refereed)		1			3	1	5
B3 Unrefereed article in conference proceedings	1			1	1		3
C1 Published scientific monograph	1		2				3
C2 Edited book, compilation, conference proceeding or special issue of journal	1				2	1	4
D1 Article in professional journal						1	1
D2 Article in professional hand or guide book or in a professional data system, or text book material			1		6		7
D3 Article in professional conference proceedings					1		1
D4 Published development or research report	2		1	1			4
D5 Text book or professional handbook or guidebook or dictionary			1				1
E1 Popular article, newspaper article	2		3	3	1	1	10
E1 Popular contribution to book/other compilations		1			1	6	8



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Publication type	2005	2006	2007	2008	2009	2010	Total Count 2005 - 2010
E2 Popular monograph	1	2		1		1	5



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2 Listing of publications

A1 Refereed journal article

2005

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A2 Review in scientific journal

2007

Pressey, R.J., Cabeza-Jaimejuan, M., Watts, M.E., Cowling, R.M., Wilson, K. **2007**, 'Conservation planning in a changing world', **Trends in Ecology & Evolution**, vol 22, pp. 583-592.

2008

O'Hara, R., Cano, J.M., Ovaskainen, O., Teplitsky, C., Alho, J. **2008**, 'Bayesian approaches in evolutionary quantitative genetics', **Journal of Evolutionary Biology**, vol 21, no. 4, pp. 949-957.

Patterson, T.A., Thomas, L., Wilcox, C., Ovaskainen, O., Matthiopoulos, J. **2008**, 'State-space models of individual animal movement', **Trends in Ecology & Evolution**, vol 23, no. 2, pp. 87-94.

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2009

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A3 Contribution to book/other compilations (refereed)

2005

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2006

Derome, J., Manninen, S., Aherne, J., Hellstedt, P., Hettelingh, J., Hicks, K., Huttunen, S., Kämäri, J., Kashulina, G., Kozlov, M., Markkola, A., Posch, M., Ruotsalainen, A., Salminen, R., Zvereva, E. **2006**, 'Effects on terrestrial ecosystems', **AMAP assessment 2006, Arctic Monitoring and Assessment Programme, Oslo**, pp. 41-63.

Kuuluvainen, T., Ollonqvist, P., Pennanen, J., Lilja, S. **2006**, 'Elinympäristöjen ennallistaminen', in TPH.[A (ed.)], **Metson jäljillä. Etelä-Suomen metsien monimuotoisuusohjelman tutkimusraportti.**, Maa- ja metsätalousministeriö, ympäristöministeriö, [Helsinki], pp. 40-52.

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2008



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CoE MRG/Hanski

Aittamaa, M, Auvinen, P, Hinderink, K, Kiviniemi, K, Korkeala, H, Leppäranta, O, Lindström, M, Mattinen, L, Myllys, V, Nevas, M, Nykäsenoja, S, Pirhonen, M, Rantala, L, Somervuo, P, Valkonen, JPT 2008, 'Plant, animal and food pathogens analyzed using genome-wide microarrays: towards improved diagnostics and control of bacterial pathogens', in EBJEFAFP (ed.), **Agricultural biomarkers for array technology, Agroscope Changins-Wädenswil ACW, Wädenswil**, pp. 47-51.

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Ferrier, S, Faith, DP, Arponen, A, Drielsma, M 2009, 'Community-level approaches to spatial conservation prioritization', in A Moilanen, KA Wilson, HP Possingham (eds), **Spatial conservation prioritization, Oxford University Press, Oxford**.

Hanski, I 2009, 'Incorporating the spatial configuration of the habitat into ecology and evolutionary biology', **Spatial Ecology, Chapman and Hall/CRC mathematical & computational biology series, Chapman & Hall / CRC**, pp. 167-188.

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A4 Article in conference publication (refereed)

2005

Schigel, D 2005, 'Links of the saproxylic chain in European boreal forests', in **Griby v prirodnyh i antropogennyh zkosistemah: trudy mezhdunarodnoj konferencii, posvasennoj 100-letiu nacala raboty professora A. S. Bondarceva v Botaniceskom institute im. V. L. Komarova RAN (Sankt-Peterburg, 24-28 aprila 2005 g.) = Fungi in natural and anthropogenic ecosystems : proceedings of the international conference dedicated to the centenary of the beginning by professor A. S. Bondartsev his research activity at the V. L. Komarov Botanical Institute RAS (24-28 April, 2005, Saint Petersburg)**, pp. 335-337.

2007

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2008

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Mononen, T, Myllymäki, P 2008, 'On recurrence formulas for computing the stochastic complexity', in **Proceedings of the 2008 International Symposium on Information Theory and its Applications, Auckland, New Zealand, 7th-10th December 2008: IEEE 2008**, pp. 281-286.



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RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

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Mononen, T, Myllymäki, P 2008, 'Computing the NML for Bayesian forests via matrices and generating polynomials', in **Proceedings of the 2008 IEEE Information Theory Workshop: IEEE 2008**, pp. 276-280.

Mononen, T, Myllymäki, P 2008, 'On the multinomial stochastic complexity and its connection to the birthday problem', in **ITSL 2008: CSREA Press 2008**, pp. 17-22.

B1 Unrefereed journal article

2005

Moilanen, A 2005, 'Suojelualueiden verkostot ja ilmastonmuutos', **Tieteessä tapahtuu**, vol 2005, no. 4, pp. 17-23.

2006

Vierimaa, O, Georgitsi, M, Lehtonen, R, Vahteristo, P, Kokko, A, Raitila, A, Tuppurainen, K, Ebeling, T, Salmela, PI, Paschke, R, Gundogdu, S, de Menis, E, Mäkinen, MJ, Launonen, V, Aaltonen, LA, Karhu, A 2006, 'AIP-mutaatiot altistavat aivolisäkkeen adenomalle: [referaatti Science lehden artikkelista]', **Duodecim**, vol 122, no. 12, pp. 1419-1420.

2009

Ovaskainen, O 2009, 'Eliöiden liikkumisen ja evoluution satunnaispolkuja', **Arkhimedes**, vol 2009, no. 1, pp. 22-27.

B2 Contribution to book/other compilations (non-refereed)

2006

Pennanen, J, Kuuluvainen, T 2006, 'Etelä-Suomen metsien luontainen aluetason rakenne', in P Horne, T Koskela, M Kuusinen, A Otsamo, K Syrjänen (eds), **Metson jäljillä : Etelä-Suomen metsien monimuotoisuusohjelman tutkimusraportti / toimittajat: Paula Horne ... [et al.], Maa- ja metsätalousministeriö, ympäristöministeriö**, pp. 291- 292.

2009

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2010

Arponen, A, Kujala, H 2010, 'Tieteestä työkalut nisäkkäiden suojeluun', in J Katajisto, M Heimovirta, P Hellstedt, R Lumiaro, S Sirkkiä (eds), **Luonnossa Nisäkkäät; osa 3, Weilin + Göös.**

B3 Unrefereed article in conference proceedings

2005

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2008

Niemelä, T, Kotiranta, H, Schigel, D 2008, 'Uhanalaisten ja puutteellisesti tunnettujen kääväkkäiden ja niistä riippuvaisten kovakuoriaisten tutkimus', in **Research Programme of Deficiently Known and Threatened Forest Species – the final report: Puutteellisesti tunnettujen ja uhanalaisten metsälajien tutkimusohjelma – loppuraportti**, pp. 104-105.

2009

Schigel, D 2009, 'Мицетобионтные жуки-стафилиниды (Coleoptera: Staphylinidae) Центральной России и Южной Финляндии', in **Proceedings of Stavropol Dept. of Russian Ent. Soc.**, pp. 117–119.

C1 Published scientific monograph



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CoE MRG/Hanski

2005

Hanski, I **2005**, *The shrinking world: Ecological consequences of habitat loss*, **EXCELLENCE IN ECOLOGY**, vol. 14, **International Ecology Institute, Oldendorf (Luhe)**.

2007

Hanski, I **2007**, *Kutistuva maailma: Elinympäristöjen häviämisen populaatioekologiset seuraukset*, **Gaudeamus, Helsinki**.

Hanski, I **2007**, *Viestejä saarilta: miksi luonnon monimuotoisuus hupenee?*, **Gaudeamus, Helsinki**.

C2 Edited book, compilation, conference proceeding or special issue of journal

2005

Roslin, T, Kotze, D (eds) **2005**, *Spatial ecology of herbivorous insects*, **Annales Zoologici Fennici**, no. 4, vol. 42, vol. 42, **Finnish Zoological and Botanical Publishing Board, Helsinki**.

2009

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Moilanen, A, Possingham, H, Wilson, K (eds) **2009**, *Spatial conservation prioritization: Quantitative methods and computational tools*, **Oxford University Press, Oxford**.

2010

Duplouy, AMR, O'Neill, S **2010**, *Evolutionary Biology - Concepts, Molecular and Morphological Evolution, 13th Meeting 2009: Male-Killing Wolbachia in the Butterfly Hypolimnas bolina*, vol. Part 3, P. Pontarotti edn.

D1 Article in professional journal

2010

Hytönen, T, Palonen, P, Valkonen, J, Laine, A, Elomaa, P, Kärenlampi, S, Kokko, H, Kostamo, K, Karhu, S, Koivisto, A, Tuovinen, T, Uosukainen, M **2010**, 'Uudessa marjahankkeessa kehitetään tunnelituotantoa', **Puutarha & kauppa**, vol 13, no. 23, pp. 22-23.

D2 Article in professional hand or guide book or in a professional data system, or text book material

2007

Greco, D, Somervuo, PJ, Raitila, TT, Auvinen, P **2007**, 'Unique expression fingerprints of human tissues', **CSC Report on Computational Science in Finland 2006-2007**.

2009

Holmala, K, Katajisto, J **2009**, 'Nisäkkäiden tilankäytön tutkiminen', in J Katajisto (ed.), **Nisäkkäät: Luonnossa. 2, Weilin + Göös, Helsinki**, pp. 182-185.

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Katajisto, J **2009**, 'Juovamaaorava –pesäkeskeinen ruuankeräilijä', **Nisäkkäät: Luonnossa. 2, Weilin + Göös, Helsinki**, pp. 192-193.

Katajisto, J **2009**, 'Milloin ja minne muuttaa pois?', in J Katajisto (ed.), **Nisäkkäät: Luonnossa. 2, Weilin + Göös, Helsinki**, pp. 186-190.

D3 Article in professional conference proceedings

2009

Hytönen, T, Palonen, P, Valkonen, J, Laine, A, Elomaa, P, Kärenlampi, S, Kokko, H, Kostamo, K, Kauppinen, H, Koivisto, A, Tuovinen, T, Uosukainen, M, Karhu, S, Hoppula, K **2009**, 'Uusi marja-alan tutkimushanke: Suomalaisen marjantuotannon kilpailukyvyyn parantaminen ja kestävä kehittäminen muuttuvassa ilmastossa', in **Kaamosmarjapäivät: Ikaalisten kylpylä, 2.-3.12.2009**.

D4 Published development or research report



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2005

Swenson, JE, Arnemo, JM, Bellemain, E, Brunberg, S, Dahle, B, Drageset, O, Hustad, H, Katajisto, J, Kindberg, J, Nerheim, E, Solberg, KH, Segerström, P, Støen, O, Söderberg, A, Zedrosser, A **2005**, *Rovvilt og Samfunn (RoSa)—Det skandinaviske bjørneprosjektet. Oversikt over gjennomførte aktiviteter, Sluttrapport til Norges forskningsråd, NINA Rapport, no. 31.*

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Olofsson, J, Hickler, T, Sykes, MT, Araújo, MB, Baletto, E, Berry, PM, Cabeza, M, Dubuis, A, Guisan, A, Kühn, I, Kujala, H, Piper, J, Rounsevell, M, Settele, J, Thuiller, W **2008**, *Climate change impacts on European biodiversity – observations and future projections: MACIS Deliverable D 1.1.,*

D5 Text book or professional handbook or guidebook or dictionary

2007

Roslin, T, Heliövaara, K **2007**, *Suomen lantakuoriaiset: opas santiaisista lantaisiin, Yliopistopaino, Helsinki.*

E1 Popular article, newspaper article

2005

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Hanski, I, Ovaskainen, O **2007**, 'The flight of a butterfly poses challenging questions from molecules to landscapes', **CSC news : superlaskennan tiedotuslehti**, vol 19, no. 1, pp. 24-26.

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2008

Roslin, T **2008**, 'Ett ton kodynga grundligt synad', **Finlands Natur**, no. 4, pp. 11.

Roslin, T **2008**, '4H-laisten ämpäreistä nousi 15 000 lantakuoriaista', **4H Pilke**, no. 7, pp. 14-15.

Sundell, J **2008**, 'Myyriä! Tulkaa apuun!', **Suomen luonto**, vol 67, no. 7, pp. 13.

2009

Roslin, T, Kaartinen, R, Hardwick, B **2009**, 'Äkämäpistiäiset', **Suomen luonto**, vol 68, pp. 12-13.

2010

Tack, AJM **2010**, 'Adaptation of insects to individual trees', **Bulletin of the Ecological Society of America**, vol 91, no. 3, pp. 335-338.

E1 Popular contribution to book/other compilations

2006

Pennanen, J, Kuuluvainen, T **2006**, 'Suomalaisen metsän luontainen rakenne ja monimuotoisuus', in R. Jalonen (ed.), **Uusi Metsäkirja, Gaudeamus, Helsinki**, pp. 231-235.

2009



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RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

CoE MRG/Hanski

Katajisto, J **2009**, 'Petoeläimet: koiramaiset', in J Katajisto, M Heimovirta, P Hellstedt, R Lumiaro (eds), **Nisäkkäät: Luonnossa. 1, Weilin+Göös (WSOY), Helsinki**, pp. 132.

2010

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Katajisto, J, Lumiaro, R, Hellstedt, P, Heimovirta, M, Sirkiä, SM **2010**, 'Mitä nykyihmisen jälkeen?', in J Katajisto, M Heimovirta, P Hellstedt, R Lumiaro, S Sirkiä (eds), **Nisäkkäät: Luonnossa. 3, WSOY, Helsinki**, pp. 248-251.

Katajisto, J, Lumiaro, R **2010**, 'Mikrobista nisäkkääksi', in J Katajisto, M Heimovirta, P Hellstedt, R Lumiaro, S Sirkiä (eds), **Nisäkkäät: Luonnossa. 3, WSOY, Helsinki**, pp. 12-17.

Katajisto, J **2010**, 'Jääkarhu –elämää kutistuvan jään reunalla', in J Katajisto, M Heimovirta, P Hellstedt, R Lumiaro (eds), **Nisäkkäät: Luonnossa. 3, WSOY, Helsinki**, pp. 236-237.

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Katajisto, J **2010**, 'Massasukupuutosta toiseen', in J Katajisto, M Heimovirta, P Hellstedt, R Lumiaro (eds), **Nisäkkäät: Luonnossa. 3, WSOY, Helsinki**, pp. 210-211.

E2 Popular monograph

2005

Sundell, J **2005**, *Lumikko*, vol. [2], **Weilin + Göös, [Helsinki]**.

2006

Jalonen, R (ed.), Hanski, I (ed.), Kuuluvainen, T (ed.), Nikinmaa, E, Pelkonen, P (ed.), Puttonen, P (ed.), Raitio, K (ed.), Tahvonen, OI (ed.) **2006**, *Uusi metsäkirja*, **Gaudeamus, Helsinki**.

Moilanen, A, Kujala, H **2006**, *Zonation: Spatial conservation planning framework and software v. 1.0 [user manual]*, **Edita**.

2008

Moilanen, A, Kujala, H **2008**, *Zonation: software for spatial planning: [user manual]*, v. 2.0. edn.

2010

Katajisto, J (ed.), Heimovirta, M (ed.), Hellstedt, P (ed.), Riku, L (ed.), Sirkiä, SM (ed.), Heimala, V **2010**, *Luonnossa Nisäkkäät 1-3, Weilin + Göös*.



INTERNATIONAL EVALUATION OF RESEARCH AND DOCTORAL TRAINING AT THE
UNIVERSITY OF HELSINKI

RC-SPECIFIC TUHAT COMPILATIONS OF OTHER SCIENTIFIC ACTIVITIES 2005-2010

CoE MRG/Hanski

1 Analysis of activities 2005-2010

- Associated person is one of Virpi Ahola , Anni Arponen , Sandip Banejee , Mar
Cabeza-Jaimejuan , Chaozhi Zheng , Christelle Couchoux , Maeike De
Jong , Anne Mireille Regine Duplouy , Johanna Eklund , Andreia Miraldo ,
Sofia Gripenberg , Eliezer Gurarie , Christoph Haag ,
Ilkka Hanski , Philip John Harrison , Paavo Hellstedt , Emily
Anne Hornett , Jenni Hottola , Riikka Kaartinen ,
Jonna Katajisto , Ines Klemme , Itsuro Koizumi ,
Patrik Koskinen , Heini Kujala , Anna-Liisa Laine , Tarja
Birgitta Latva-Karjanmaa , Joona Lehtomäki , Rainer Juhani Lehtonen ,
Anniina Mattila , Varpu Mitiikka , Atte Moilanen , Tommi Mononen ,
Olivier Montreuil , Kristjan Nitepöld , Veera Maria Norros ,
Ace North , Luisa Orsini , Oksa Ovaskainen , Juho Pennanen ,
Saastamoinen , Tarjona Harivelo Ramiadantsoa , Tomas Roslin , Marjo Anna Kaarina
Alia Sarhan , Dmitry Schigel ,
Panu Juhani Somervuo , Janne Sundell , Leena Suvanto ,
Astrid Jacoba Alida van Teeffelen , Eva Tas , Saskya van Nouhuys ,
Viljanen , Helena Kristiina Wirta , Christopher West Wheat , Heidi

Activity type	Count
Supervisor or co-supervisor of doctoral thesis	34
Prizes and awards	24
Editor of research journal	77
Peer review of manuscripts	189
Editor of series	1
Editor of special theme number	1
Assessment of candidates for academic posts	8
Membership or other role in review committee	1
Membership or other role in research network	6
Membership or other role in national/international committee, council, board	40
Membership or other role in public Finnish or international organization	5
Membership or other role of body in private company/organisation	8
Participation in interview for written media	96
Participation in radio programme	21
Participation in TV programme	12
Participation in interview for web based media	7



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2 Listing of activities 2005-2010

Supervisor or co-supervisor of doctoral thesis

Ilkka Hanski ,

Doctoral student supervisor, Anna-Liisa Laine, Ilkka Hanski, 2000 → 2005, Finland
Doctoral student supervisor, Juha Pöyry, Ilkka Hanski, 2000 → 2008, Finland
Doctoral student supervisor, Reijo Penttilä, Ilkka Hanski, 2000 → 2006, Finland
Doctoral student supervisor, Tarja Latva-Karjanmaa, Ilkka Hanski, 2000 → 2006, Finland
Doctoral student supervisor, Alia Austin (Sarhan), Ilkka Hanski, 2001 → 2006, France
Doctoral student supervisor, Jenni Hottola, Ilkka Hanski, 2003 → 2009, Finland
Doctoral student supervisor, Varpu Mitikka, Ilkka Hanski, 2003 → 2010, Finland
Doctoral student supervisor, Heidi Viljanen, Ilkka Hanski, 2004 → 2010, Finland
Doctoral student supervisor, Helena Wirta, Ilkka Hanski, 2004 → 2009, Finland
Doctoral student supervisor, Marjo Saastamoinen, Ilkka Hanski, 2004 → 2007, Finland
Doctoral student supervisor, Kristjan Niitepõld, Ilkka Hanski, 2005 → 2010, Finland
Doctoral student supervisor, Jouni Kvist, Ilkka Hanski, 2006 → ..., Finland
Doctoral student supervisor, Anniina Mattila, Ilkka Hanski, 2010 → ..., Finland
Doctoral student supervisor, Tanjona Ramiadantsoa, Ilkka Hanski, 2010 → ..., Madagascar

Anna-Liisa Laine ,

Doctoral student supervision, Hanna Susi, Anna-Liisa Laine, 01.07.2010 → ..., Finland

Atte Moilanen ,

Doctoral student supervisor, Jonna Katajisto, Atte Moilanen, 2002 → 2006, Finland
Doctoral student supervisor, Anni Arponen, Atte Moilanen, 2004 → 2009, Finland
Doctoral student supervisor, Astrid van Teeffelen, Atte Moilanen, 2004 → 2007, Netherlands
Doctoral student supervisor, Joonas Lehtomäki, Atte Moilanen, 2008 → ..., Finland
Doctoral student supervisor, Santtu Kareksela, Atte Moilanen, 2009 → ..., Finland

Otso Ovaskainen ,

Supervisor of PhD thesis, Otso Ovaskainen, 2009
Supervisor of PhD thesis, Otso Ovaskainen, 2009
Supervisor of PhD thesis, Otso Ovaskainen, 2010

Tomas Roslin ,

Graduate student supervisor, Sofia Gripenberg, Tomas Roslin, 2003 → 2007, Finland
Graduate student supervisor, Ayco Tack, Tomas Roslin, 2005 → 2010, Finland
Graduate student supervisor, Riikka Kaartinen, Tomas Roslin, 2006 → ..., Finland
Graduate student co-supervisor, Matti Landvik, Tomas Roslin, 2010 → ..., Finland
Graduate student co-supervisor, Silvija Budaviciute, Tomas Roslin, 2010 → ...

Janne Sundell ,

Supervisor: PhD thesis Marko Haapakoski, Janne Sundell, 2006 → ..., Finland
Supervisor: PhD thesis Annika Opperbeck, Janne Sundell, 2008 → ..., Finland
Supervisor: PhD thesis Saana Sipari, Janne Sundell, 2010 → ..., Finland
Supervisor: PhD thesis Katri Korpela, Janne Sundell, 2010 → ..., Finland



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Saskya van Nouhuys ,

Doctoral student supervision- Christelle Couchoux, Saskya van Nouhuys, 01.04.2009 → 31.03.2013, Finland

Doctoral student supervisor- Katie Sullivan, Saskya van Nouhuys, 01.09.2009 → 31.01.2014, United States

Prizes and awards

Anni Arponen ,

Honorary award for supervision of MSc theses, Anni Arponen, 2010, Finland

Mar Cabeza-Jaimejuan ,

Commendation for good thesis supervision, Mar Cabeza-Jaimejuan, 2009

Best International Teacher, Mar Cabeza-Jaimejuan, 2010, Finland

Maaïke De Jong ,

CIMO Fellowship, Maaïke De Jong, 01.05.2010 → 30.09.2010

ESF ThermAdapt Exchange Grant, Maaïke De Jong, 15.05.2010 → 15.08.2010

Ilkka Hanski ,

Honorary professorship, Ilkka Hanski, 2003 → ..., China

Honorary membership of a student association, Ilkka Hanski, 2005 → ..., Finland

Marsh Award for Ecology, Ilkka Hanski, 2005, United Kingdom

Science Award of the City of Helsinki, Ilkka Hanski, 2005, Finland

Award of a college in Helsinki, Ilkka Hanski, 2006, Finland

E.J. Nyström Prize, Ilkka Hanski, 2007, Finland

Finnish Science Award, Ilkka Hanski, 2007, Finland

Finnish State Prize for Dissemination of Information, Ilkka Hanski, 2007, Finland

Nonfiction literature prize for the book Viestejä Saarilta, Ilkka Hanski, 2008, Finland

Honorary doctorate, Ilkka Hanski, 2010, Norway

Latsis Prize of the European Science Foundation, Ilkka Hanski, 17.11.2010

The Environment Award of the Finnish Association for Nature Conservation, Ilkka Hanski, 2010, Finland

Heini Kujala ,

Young Influential Woman in Society Award, Heini Kujala, 2008, Finland

Olli's prize, Heini Kujala, 10.03.2010, Finland

Otso Ovaskainen ,

The Academy of Finland Award, Otso Ovaskainen, 2009

Tomas Roslin ,

Academy of Finland Recognition Award, Tomas Roslin, 2005 → ...

Academy of Finland Recognition Award 2005, Tomas Roslin, 10.11.2005, Finland

Best tutor of undergraduate students in the Faculty of Biosciences, Tomas Roslin, 2007 → ...

Marjo Anna Kaarina Saastamoinen ,

Finnish Academy PhD-thesis award, Marjo Anna Kaarina Saastamoinen, 2008

Editor of research journal

Mar Cabeza-Jaimejuan ,

Conservation Biology, Mar Cabeza-Jaimejuan, 2004 → 2011



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Sofia Gripenberg ,

Plant Ecology, Sofia Gripenberg, 01.01.2007 → 31.12.2007

Philip John Harrison ,

Journal of Zoology, Philip John Harrison, 01.01.2006 → 31.12.2006

New Zealand Journal of Marine & Freshwater Research, Philip John Harrison, 01.01.2006 → 31.12.2006

Oikos, Philip John Harrison, 01.01.2006 → 31.12.2006

Conservation Biology, Philip John Harrison, 01.01.2007 → 31.12.2007

Ecological Modelling, Philip John Harrison, 01.01.2007 → 31.12.2007

Journal of Applied Ecology, Philip John Harrison, 01.01.2007 → 31.12.2007

Basic & Applied Ecology, Philip John Harrison, 01.01.2008 → 31.12.2008

Ecological Applications, Philip John Harrison, 01.01.2008 → 31.12.2008

Integrative Zoology, Philip John Harrison, 01.01.2008 → 31.12.2008

Jenni Hottola ,

* Biological Conservation, Jenni Hottola, 01.01.2007 → 31.12.2007

Jonna Katajisto ,

Ecology, Jonna Katajisto, 01.01.2007 → 31.01.2007

Anna-Liisa Laine ,

Member of Editorial board of Journal of Evolutionary Biology, Anna-Liisa Laine, 2010 → ...

Atte Moilanen ,

Conservation Letters, Atte Moilanen, 2007 → ...

Conservation Letters, Atte Moilanen, 01.01.2008 → 31.12.2008

Otso Ovaskainen ,

Editorial Board Member in Population Ecology, Otso Ovaskainen, 2007 → ...

Tomas Roslin ,

Annales Zoologici Fennici, Tomas Roslin, 2006 → ..., Finland

Janne Sundell ,

Acta Theriologica, Janne Sundell, 01.04.2005 → 30.06.2005

Annales Zoologici Fennici, Janne Sundell, 01.04.2005 → 30.04.2005, Finland

Behavioral Ecology and Sociobiology, Janne Sundell, 01.10.2005 → 31.10.2005

Ecological Applications, Janne Sundell, 01.06.2005 → 30.06.2005, United States

Journal of Animal Ecology, Janne Sundell, 01.04.2005 → 30.04.2005, United Kingdom

Oecologia, Janne Sundell, 01.08.2005 → 31.08.2005, Germany

Zoological Studies, Janne Sundell, 01.03.2005 → 31.03.2005

Acta Theriologica, Janne Sundell, 01.01.2006 → 31.12.2006

Behavioural Ecology and Sociobiology, Janne Sundell, 01.01.2006 → 31.12.2006

Ecography, Janne Sundell, 01.01.2006 → 31.12.2006

Ethiopian Journal of Biological Sciences, Janne Sundell, 01.01.2006 → 31.12.2006

Journal of Raptor Research, Janne Sundell, 01.01.2006 → 31.12.2006

Oecologia, Janne Sundell, 01.01.2006 → 31.12.2006

Oikos, Janne Sundell, 01.01.2006 → 31.12.2006

Annales Zoologici Fennici, Janne Sundell, 01.10.2007 → 31.10.2007, Finland



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Biological Conservation, Janne Sundell, 01.07.2007 → 31.07.2007, United States
Ecography, Janne Sundell, 01.06.2007 → 30.06.2007
Ecological Research, Janne Sundell, 01.01.2007 → 31.12.2007
Ecological Research, Janne Sundell, 01.01.2007 → 31.12.2007
Ecological Research, handling editor 2007-, Janne Sundell, 2007 → ...
Ethology, Janne Sundell, 01.11.2007 → 30.11.2007
Ethology Ecology and Evolution, Janne Sundell, 01.09.2007 → 30.09.2007
Journal of Animal Ecology, Janne Sundell, 01.04.2007 → 30.04.2007
Lutra, Janne Sundell, 01.11.2007 → 30.11.2007, Netherlands
Oecologia, Janne Sundell, 01.01.2007 → 31.12.2007
Oecologia, Janne Sundell, 01.01.2007 → 31.12.2007
Oecologia, Janne Sundell, 01.01.2007 → 31.12.2007
Oecologia, handling editor 2007-, Janne Sundell, 2007 → ...
Population Ecology, Janne Sundell, 01.07.2007 → 31.07.2007, Japan
Acta Theriologica, Janne Sundell, 01.01.2008 → 31.12.2008, Poland
BMC Ecology, Janne Sundell, 01.01.2008 → 31.12.2008
Biological Conservation, Janne Sundell, 01.01.2008 → 31.12.2008
Ecological Research, Janne Sundell, 01.01.2008 → 31.12.2008
Ecological Research, Janne Sundell, 01.01.2008 → 31.12.2008
Ecological Research, Janne Sundell, 01.01.2008 → 31.12.2008, Japan
Ethology, Janne Sundell, 01.01.2008 → 31.12.2008
Luonnontutkija, Janne Sundell, 01.01.2008 → 31.12.2008, Finland
Mammalian Biology, Janne Sundell, 01.01.2008 → 31.12.2008
Oecologia, Janne Sundell, 01.01.2008 → 31.12.2008
Oecologia, Janne Sundell, 01.01.2008 → 31.12.2008
Oecologia, Janne Sundell, 01.01.2008 → 31.12.2008

Saskya van Nouhuys ,

Basic and Applied Ecology, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
Ecography, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
Ecology Letters, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
J. of Insect Behavior, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
Oecologia, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
Oikos, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
Annals of the entomological society of America, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
Basic and Applied Ecology, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
Ecography, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
Ecological Applications, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
Ecological Entomologia Experimentalis et Applicata, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
Entomologica Fennica, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
J. of Animal Ecology, Saskya van Nouhuys, 01.01.2007 → 31.12.2007
Oikos, Saskya van Nouhuys, 01.01.2007 → 31.12.2007



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Annals of the Entomological Society of America, Saskya van Nouhuys, 2008 → ..., United States

ISRN Zoology, Saskya van Nouhuys, 10.2010 → ..., India

Christopher West Wheat ,

BMC Evolutionary Biology, Christopher West Wheat, 01.06.2010

BMC Genomics, Christopher West Wheat, 01.05.2010

Peer review of manuscripts

Virpi Ahola ,

BMC Evolutionary Biology, Virpi Ahola, 2008

BMC Genetics, Virpi Ahola, 2009 → ...

Molecular Biology and Evolution, Virpi Ahola, 2009 → ...

Bioinformatics, Virpi Ahola, 2010 → ...

Anni Arponen ,

Reviewer for Environmental Management, Anni Arponen, 2005 → ...

Reviewer for Biological Conservation, Anni Arponen, 2006 → ...

Reviewer for Conservation Biology, Anni Arponen, 2006 → ...

Reviewer for Diversity & Distributions, Anni Arponen, 2007 → ...

Reviewer for Ecology and Society, Anni Arponen, 2007 → ...

Reviewer of a chapter in the book "Setting Conservation Targets for Managed Forest Landscapes", Anni Arponen, 2007

Reviewer for Conservation Letters, Anni Arponen, 2008 → ...

Reviewer for Ecography, Anni Arponen, 2008 → ...

Reviewer for Ecological Modelling, Anni Arponen, 2008 → ...

Reviewer for Biodiversity and Conservation, Anni Arponen, 2009 → ...

Reviewer for Ecological Research, Anni Arponen, 2009 → ...

Reviewer for Ecology, Anni Arponen, 2009 → ...

Reviewer for Journal of Applied Ecology, Anni Arponen, 2009 → ...

Reviewer for Journal of Environmental Management, Anni Arponen, 2009 → ...

Reviewer for Biological Invasions, Anni Arponen, 2010 → ...

Reviewer of abstracts for conference presentations for the Society for Conservation Biology's Annual Meeting, Anni Arponen, 2010 → ...

Mar Cabeza-Jaimejua ,

Landscape Ecology, Mar Cabeza-Jaimejua, 2005

Conservation Biology, Mar Cabeza-Jaimejua, 2006

Ecology Letters, Mar Cabeza-Jaimejua, 2006

Biological Conservation, Mar Cabeza-Jaimejua, 2007

Proceedings of the Royal Society B, Mar Cabeza-Jaimejua, 2007

Biology Letters, Mar Cabeza-Jaimejua, 2008

Global Change Biology, Mar Cabeza-Jaimejua, 2008

Journal of Applied Ecology, Mar Cabeza-Jaimejua, 2008

Trends in Ecology and Evolution, Mar Cabeza-Jaimejua, 2008

American Naturalist, Mar Cabeza-Jaimejua, 2009

Biology Letters, Mar Cabeza-Jaimejua, 2009



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Journal of theoretical biology, Mar Cabeza-Jaimejuan, 2009
Landscape Ecology, Mar Cabeza-Jaimejuan, 2009
Plos ONE, Mar Cabeza-Jaimejuan, 2009
Animal Conservation, Mar Cabeza-Jaimejuan, 2010
Biological Conservation, Mar Cabeza-Jaimejuan, 2010
Conservation Biology, Mar Cabeza-Jaimejuan, 2010
Diversity and Distributions, Mar Cabeza-Jaimejuan, 2010
Ecological Modelling, Mar Cabeza-Jaimejuan, 2010
Global Change Biology, Mar Cabeza-Jaimejuan, 2010
Journal of Applied Ecology, Mar Cabeza-Jaimejuan, 2010
Landscape Ecology, Mar Cabeza-Jaimejuan, 2010
PlosONE, Mar Cabeza-Jaimejuan, 2010
Transactions Royal Society B, Mar Cabeza-Jaimejuan, 2010

Andreia Miraldo ,

Molecular Ecology, Andreia Miraldo, 2010

Ilkka Hanski ,

Oecologia, Ilkka Hanski, 1991 → 2007, Germany
Annales Zoologici Fennici, Ilkka Hanski, 01.01.1993 → ..., Finland
Acta Theriologica, Ilkka Hanski, 1999 → ...
Global Change Biology, Ilkka Hanski, 1999 → 2008
Journal of Insect Conservation, Ilkka Hanski, 1999 → ..., Netherlands
Oikos, Ilkka Hanski, 1999 → 2006
Trends in Ecology and Evolution, Ilkka Hanski, 2000 → ...
EMBO Reports, Ilkka Hanski, 2010 → ...

Philip John Harrison ,

Ecology, Philip John Harrison, 2006
New Zealand Journal of Marine & Freshwater Research, Philip John Harrison, 2006
Oikos, Philip John Harrison, 2006
Zoology, Philip John Harrison, 2006
Conservation Biology, Philip John Harrison, 2007
Ecological Modelling, Philip John Harrison, 2007
Journal of Applied Ecology, Philip John Harrison, 2007
Basic & Applied Ecology, Philip John Harrison, 2008
Ecological Applications, Philip John Harrison, 2008
The American Naturalist, Philip John Harrison, 2010

Heini Kujala ,

Reviewer of the journal Conservation Biology, Heini Kujala, 12.2006
Reviewer of the journal Conservation Biology, Heini Kujala, 05.2008
Reviewer of the journal Conservation Biology, Heini Kujala, 06.2009
Reviewer of the journal Global Change Biology, Heini Kujala, 03.2010
Riewier of the journal Biological Conservation, Heini Kujala, 08.2010



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Reviewer of the journal Conservation Letters, Heini Kujala, 11.2010

Anna-Liisa Laine ,

Annales Zoologici Fennici, Anna-Liisa Laine, 01.01.2005 → 31.12.2005

Ecological Entomology, Anna-Liisa Laine, 01.01.2005 → 31.12.2005

Journal of Evolutionary Biology, Anna-Liisa Laine, 01.01.2005 → 31.12.2005

Acta Oecologica, Anna-Liisa Laine, 01.01.2006 → 31.12.2006

American Naturalist, Anna-Liisa Laine, 01.01.2006 → 31.12.2006

Evolution, Anna-Liisa Laine, 01.01.2006 → 31.12.2006

Journal of Evolutionary Biology, Anna-Liisa Laine, 01.01.2006 → 31.12.2006

Oecologia, Anna-Liisa Laine, 01.01.2006 → 31.12.2006

BMC Ecology, Anna-Liisa Laine, 2008 → ...

Biological Journal of the Linnean Society, Anna-Liisa Laine, 2008 → ...

TRENDS in Ecology & Evolution, Anna-Liisa Laine, 2008 → ...

TRENDS in Parasitology, Anna-Liisa Laine, 2008 → ...

American Naturalist, Anna-Liisa Laine, 2009 → ...

Annals of Forest Science, Anna-Liisa Laine, 2009 → ...

BMC Evolutionary Biology, Anna-Liisa Laine, 2009 → ...

Ecology, Anna-Liisa Laine, 2009 → ...

Evolutionary Applications, Anna-Liisa Laine, 2009 → ...

American Naturalist, Anna-Liisa Laine, 2010 → ...

Ecology, Anna-Liisa Laine, 2010 → ...

Ecology Letters, Anna-Liisa Laine, 2010 → ...

Evolution, Anna-Liisa Laine, 2010 → ...

Evolutionary Applications, Anna-Liisa Laine, 2010 → ...

Journal of Ecology, Anna-Liisa Laine, 2010 → ...

New Phytologist, Anna-Liisa Laine, 2010 → ...

PLOS Pathogens, Anna-Liisa Laine, 2010 → ...

Proceedings of the Royal Society, Anna-Liisa Laine, 2010 → ...

Joona Lehtomäki ,

Reviewer for Landscape Ecology, Joona Lehtomäki, 30.05.2006 → 20.06.2006

Reviewer for Conservation Biology, Joona Lehtomäki, 25.04.2007 → 10.05.2007

Reviewer for Conservation Biology, Joona Lehtomäki, 15.05.2008 → 30.05.2008

Reviewer for Conservation Biology, Joona Lehtomäki, 29.06.2010 → 15.07.2010

Atte Moilanen ,

Biological Conservation, Atte Moilanen, 01.01.2005 → 31.12.2005

Conservation Biology, Atte Moilanen, 01.01.2005 → 31.12.2005

Landscape Ecology, Atte Moilanen, 01.01.2005 → 31.12.2005

Oikos, Atte Moilanen, 01.01.2005 → 31.12.2005

Proceedings of the Royal Society of London Series B, Atte Moilanen, 01.01.2005 → 31.12.2005

Biological Conservation, Atte Moilanen, 01.01.2007 → 31.12.2007

Conservation Biology, Atte Moilanen, 01.01.2007 → 31.12.2007



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Diversity and Distributions, Atte Moilanen, 01.01.2007 → 31.12.2007
Ecology, Atte Moilanen, 01.01.2007 → 31.12.2007
Ecology Letters, Atte Moilanen, 01.01.2007 → 31.12.2007
Environmental Management, Atte Moilanen, 01.01.2007 → 31.12.2007
Environmental Modelling and Software, Atte Moilanen, 01.01.2007 → 31.12.2007
Global Change Biology, Atte Moilanen, 01.01.2007 → 31.12.2007
J. Applied Ecology, Atte Moilanen, 01.01.2007 → 31.12.2007
Landscape Ecology, Atte Moilanen, 01.01.2007 → 31.12.2007
Oikos, Atte Moilanen, 01.01.2007 → 31.12.2007
the American Naturalist, Atte Moilanen, 01.01.2007 → 31.12.2007
American Naturalist, Atte Moilanen, 01.01.2008 → 31.12.2008
Biological Conservation, Atte Moilanen, 01.01.2008 → 31.12.2008
Biology Letters, Atte Moilanen, 01.01.2008 → 31.12.2008
Conservation Biology, Atte Moilanen, 01.01.2008 → 31.12.2008
Diversity and Distributions, Atte Moilanen, 01.01.2008 → 31.12.2008
Ecology, Atte Moilanen, 01.01.2008 → 31.12.2008
Environmental Management, Atte Moilanen, 01.01.2008 → 31.12.2008
Environmental Software, Atte Moilanen, 01.01.2008 → 31.12.2008
Journal of Applied Ecology, Atte Moilanen, 01.01.2008 → 31.12.2008
Journal of Medical Decision Making, Atte Moilanen, 01.01.2008 → 31.12.2008
Proceedings of the Royal Society, series B, Atte Moilanen, 01.01.2008 → 31.12.2008
Theoretical Population Biology, Atte Moilanen, 01.01.2008 → 31.12.2008

Otso Ovaskainen ,
Peer reviews in 2005, Otso Ovaskainen, 2005
Peer reviews in 2006, Otso Ovaskainen, 2006
Peer reviews in 2007, Otso Ovaskainen, 2007
Peer reviews in 2008, Otso Ovaskainen, 2008
Peer reviews in 2009, Otso Ovaskainen, 2009
Peer reviews in 2010, Otso Ovaskainen, 2010

Tomas Roslin ,
Journal of Tropical Ecology, Tomas Roslin, 2001 → 2005
Annales Zoologici Fennici, Tomas Roslin, 2002 → 2005, Finland
Ecological Entomology, Tomas Roslin, 2002 → 2008
Oikos, Tomas Roslin, 2002 → 2007
Acta Oecologica, Tomas Roslin, 2005
Ecography, Tomas Roslin, 2005 → 2006
Oecologia, Tomas Roslin, 2005
Basic and Applied Ecology, Tomas Roslin, 2006
European Journal of Entomology, Tomas Roslin, 2006
Journal of Animal Ecology, Tomas Roslin, 2006
Biodiversity and Conservation, Tomas Roslin, 2007



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Biology Letters, Tomas Roslin, 2007
Journal of Applied Ecology, Tomas Roslin, 2007
Landscape Ecology, Tomas Roslin, 2007
Oecologia, Tomas Roslin, 2007
Population Ecology, Tomas Roslin, 2007
Ecography, Tomas Roslin, 2008 → 2010
Insect Conservation and Diversity, Tomas Roslin, 2008
Proceedings of the Royal Society B, Tomas Roslin, 2008
Evolutionary Ecology, Tomas Roslin, 2009
Global Change Biology, Tomas Roslin, 2009
Journal of Insect Conservation, Tomas Roslin, 2009
Journal of Tropical Ecology, Tomas Roslin, 2009
Oikos, Tomas Roslin, 2009 → 2010
PLoS ONE, Tomas Roslin, 2009
Biotropica, Tomas Roslin, 2010
Ecological Entomology, Tomas Roslin, 2010
Ecology Letters, Tomas Roslin, 2010
Journal of Biogeography, Tomas Roslin, 2010
Oecologia, Tomas Roslin, 2010
Physiological Entomology, Tomas Roslin, 2010

Marjo Anna Kaarina Saastamoinen ,
Ecography, Marjo Anna Kaarina Saastamoinen, 2008
Journal of Animal Ecology, Marjo Anna Kaarina Saastamoinen, 2008
Annales Zoologici Fennici, Marjo Anna Kaarina Saastamoinen, 2009
Evolution, Marjo Anna Kaarina Saastamoinen, 2009
Frontiers of Zoology, Marjo Anna Kaarina Saastamoinen, 2009
Oecologia, Marjo Anna Kaarina Saastamoinen, 2009
Population Ecology, Marjo Anna Kaarina Saastamoinen, 2009
Ecological Entomology, Marjo Anna Kaarina Saastamoinen, 2010
Evolutionary Ecology, Marjo Anna Kaarina Saastamoinen, 2010
Insect Conservation & Diversity, Marjo Anna Kaarina Saastamoinen, 2010
Oecologia, Marjo Anna Kaarina Saastamoinen, 2010
Proceedings of the Royal Society of London Series B Biological Sciences, Marjo Anna Kaarina Saastamoinen, 2010

Dmitry Schigel ,
La Terre et la Vie – Revue d'Ecologie, Dmitry Schigel, 2007
Karstenia, Dmitry Schigel, 2010

Janne Sundell ,
Reviewer of Behavioral Ecology and Sociobiology, Janne Sundell, 03.2010
Reviewer of Ecology, Janne Sundell, 03.2010
Reviewer of Integrative Zoology, Janne Sundell, 11.2010
Reviewer of Journal of Animal Ecology, Janne Sundell, 08.2010



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Reviewer of Mammalian Biology, Janne Sundell, 03.2010

Reviewer of Oecologia, Janne Sundell, 08.2010

Reviewer of PloS One, Janne Sundell, 07.2010

Reviewer of Zoological Studies, Janne Sundell, 05.2010

Ayco Jerome Michel Tack ,

Reviewer for Ecological Entomology, Functional Ecology and Oecologia, Ayco Jerome Michel Tack, 2010 → ...

Saskya van Nouhuys ,

Evolutionary Ecology, Saskya van Nouhuys, 01.01.2007 → ...

Editor of series

Jonna Katajisto ,

Luonnossa Nisäkkäät -teossarjan päätoimittaja, Jonna Katajisto, 2008 → 2010, Finland

Editor of special theme number

Tomas Roslin ,

Spatial ecology of herbivorous insects, Tomas Roslin, 2005

Assessment of candidates for academic posts

Mar Cabeza-Jaimejuan ,

Assessment Juan de la Cierva posts, Mar Cabeza-Jaimejuan, 2008

Assessment Ramon y Cajal posts, Mar Cabeza-Jaimejuan, 2008, Spain

Atte Moilanen ,

Evaluator for an Associate professor position, Atte Moilanen, 2010, Sweden

Tomas Roslin ,

External evaluator of docentship, Olli-Pekka Tikkanen, Tomas Roslin, 08.05.2007, Finland

External evaluator of docentship, Jussi Päivinen, Tomas Roslin, 17.12.2008, Finland

External evaluator of docentship, Ilari Sääksjärvi, Tomas Roslin, 13.03.2009, Finland

External evaluator of docentship, Tommi Nyman, Tomas Roslin, 23.03.2009, Finland

Advisor in University Research Fellowship, Tomas Roslin, 08.2010, Finland

Membership or other role in review committee

Ilkka Hanski ,

Chair of the Ecology and Evolutionary Biology panel of the European Research Council (Starting grants, LS8), Ilkka Hanski, 2007 → 2010, Finland

Membership or other role in research network

Virpi Ahola ,

Substitute of the EU COST TD0801 Management Committee in Finland, Virpi Ahola, 09.2009 → 12.2012

Mar Cabeza-Jaimejuan ,

Working group on climate change, Mar Cabeza-Jaimejuan, 2009

Atte Moilanen ,

Official international collaborator at the Commonwealth research hub "Applied Environmental Decision Analysis", Atte Moilanen, 2005 → ..., Australia

Associate of the Australian Centre of Excellence for Risk Analysis, Atte Moilanen, 12.2006 → ..., Australia



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Australian Centre of Excellence in Environmental Decisions (CEED), International Partnering Investigator, Atte Moilanen, 2010 → 2017, Australia

Otso Ovaskainen ,

Advisory board member in an ESF network, Otso Ovaskainen, 2007 → ...

Membership or other role in national/international committee, council, board

Mar Cabeza-Jaimejuan ,

Expert Workshops, Mar Cabeza-Jaimejuan, 2007 → 2010

Advisory board, Mar Cabeza-Jaimejuan, 2008 → 2010

Sofia Gripenberg ,

Helsingfors entomologiska förening (Societas Entomologica Helsingforsiensis), Sofia Gripenberg, 01.01.2007 → 31.12.2007, Finland

Ilkka Hanski ,

International Ecology Institute, Ilkka Hanski, 1993 → ...

Member of the Academia Europaea, Ilkka Hanski, 1998 → ..., United Kingdom

Foreign Member of the Royal Swedish Academy of Sciences, Ilkka Hanski, 2000 → ..., Sweden

Board member of Finnish Cultural Foundation, Ilkka Hanski, 2001 → 2010, Finland

Member of the Finnish Academy of Science and Letters, Ilkka Hanski, 2001 → ..., Finland

Foreign Member of Deutsche Akademie der Naturforscher Leopoldina, Ilkka Hanski, 2002 → ..., Germany

Member of the Advisory Board of the UK Population Biology Network, Ilkka Hanski, 2004 → 2007, United Kingdom

Foreign Member of the Royal Society, Ilkka Hanski, 2005 → ..., United Kingdom

Honorary Foreign Member of the American Academy of Arts & Sciences, Ilkka Hanski, 2006 → ..., United States

Corresponding Fellow of the Royal Society of Edinburgh, Ilkka Hanski, 2007 → ..., United Kingdom

Foreign associate of the National Academy of Sciences, Ilkka Hanski, 2010 → ..., United States

Paavo Hellstedt ,

Arctic Monitoring and Assessment Programme (AMAP), Paavo Hellstedt, 01.01.2006 → 31.12.2006

Jenni Hottola ,

Nordic Saproxylic Network, Jenni Hottola, 01.01.2007 → 31.12.2007

Nordic Saproxylic Network, Jenni Hottola, 01.01.2008 → 31.12.2008

Heini Kujala ,

Member of the Society for Conservation Biology, SCB, Heini Kujala, 2007 → ...

Anna-Liisa Laine ,

Board Member in Finnish Plant Protection Society, Anna-Liisa Laine, 2009 → ...

Atte Moilanen ,

Life member of Society for Conservation Biology, SCB, Atte Moilanen, 2006 → ...

Member of the program committee of the Finnish Graduate School in Computational Sciences, Atte Moilanen, 2009 → ..., Finland

Member of the "Rich natural environment" panel of FORMAS, Atte Moilanen, 2009 → ..., Sweden

Representative of researchers in an Academy of Finland panel revising the national strategy for selection of scientific centers of excellence, Atte Moilanen, 05.2009 → ..., Finland

Otso Ovaskainen ,

Faculty Member in F1000, Otso Ovaskainen, 2004 → ...

Tomas Roslin ,

Societas Entomologica Helsingforsiensis, Tomas Roslin, 01.01.2005 → 31.12.2005, Finland



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Suomen Akatemian tiedekilpailu Viksu, Tomas Roslin, 01.01.2005 → 31.12.2010, Finland
Societas Entomologica Helsingforsiensis, Tomas Roslin, 01.01.2006 → 31.12.2006, Finland
Societas Entomologica Helsingforsiensis, Tomas Roslin, 01.01.2007 → 31.12.2007
Societas Entomologica Helsingforsiensis, Tomas Roslin, 01.01.2008 → 31.12.2008, Finland
Suomen Akatemia, Tomas Roslin, 01.01.2008 → 31.12.2008, Finland

Dmitry Schigel ,

European Mycological Association, Dmitry Schigel, 2003 → ...
Nordic Saproxylic Network, Dmitry Schigel, 2004 → ...
Nordic Saproxylic Network, Dmitry Schigel, 01.01.2006 → 31.12.2006
Societas pro Fauna et Flora Fennica, Dmitry Schigel, 2006 → ..., Finland
International Society for Fungal Conservation, Dmitry Schigel, 2010 → ...

Saskya van Nouhuys ,

Ecological Society of America, Saskya van Nouhuys, 01.01.2006 → 31.12.2006, United States
Entomological Society of America, Saskya van Nouhuys, 01.01.2006 → 31.12.2006, United States
International Organization for Biological Control, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
International Society of Hymenopterists, Saskya van Nouhuys, 01.01.2006 → 31.12.2006
Xerces Society, Saskya van Nouhuys, 01.01.2006 → 31.12.2006

Membership or other role in public Finnish or international organization

Paavo Hellstedt ,

EU luontodirektiivin raportointiryhmä. EU luontodirektiivin raportoinnin asiantuntija V-liitteen lajin, hillerin osalta., Paavo Hellstedt, 01.01.2006 → 31.12.2006, Finland

Riikka Kaartinen ,

Pistiäistyöryhmä (ympäristöhallinnon koordinoima asiantuntijaryhmä), Riikka Kaartinen, 01.01.2008 → ..., Finland

Jonna Katajisto ,

Tieteellisen asiantuntijalausannon antaja koskien ihmistoiminnan vaikutusta karhuihin Italialaisessa luonnonpuistossa Adamello Brenta Natural Park, Jonna Katajisto, 01.05.2007 → 31.05.2007, Italy

Dmitry Schigel ,

Finnish Nature League, Dmitry Schigel, 2008 → ..., Finland

Janne Sundell ,

Member of the board; LUOVA graduate school, Janne Sundell, 2010 → ..., Finland

Membership or other role of body in private company/organisation

Jenni Hottola ,

Helsingin yliopiston luonnonsuojeluyhdistys, Jenni Hottola, 01.01.2005 → 31.12.2005, Finland
Luonto-Liitto, Jenni Hottola, 01.01.2005 → 31.12.2005, Finland
Helsingin yliopiston luonnonsuojeluyhdistys, Jenni Hottola, 01.01.2006 → 31.12.2006, Finland
Luonto-liitto, Jenni Hottola, 01.01.2006 → 31.12.2006, Finland
Helsingin yliopiston luonnonsuojeluyhdistys, Jenni Hottola, 01.01.2007 → 31.12.2007, Finland

Kristjan Niitepöld ,

Helsingin lintutieteellinen yhdistys, Kristjan Niitepöld, 01.01.2006 → 31.12.2006, Netherlands

Tomas Roslin ,

Norräljentie 2-4 As Oy, Tomas Roslin, 01.01.2005 → 31.12.2005



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Janne Sundell ,

Advocate and member of board in the Environmental Research Foundation of the Lammi Biological Station, Janne Sundell, 2009 → ..., Finland

Participation in interview for written media

Anni Arponen ,

Interview in the newspaper Helsingin Sanomat, Anni Arponen, 03.04.2009, Finland

Mar Cabeza-Jaimejuan ,

Cramping the competition leaves no room for complacency, Mar Cabeza-Jaimejuan, 2005

Should meat-eaters guide conservation?, Mar Cabeza-Jaimejuan, 2007

Sofia Gripenberg ,

Huvudstadsbladet, Sofia Gripenberg, 01.01.2007 → 31.12.2011, Finland

Ilkka Hanski ,

Kauppalehti, Optio, Ilkka Hanski, 01.11.2003 → 31.12.2011, Finland

YLE-Teema, Ilkka Hanski, 14.12.2006, Germany

HUB Bulletin interview article, Butterfly effects, Ilkka Hanski, 01.01.2008, Madagascar

Helsingin Sanomat monthly magazine, Ilkka Hanski, 01.01.2008 → 31.12.2011, Madagascar

Paavo Hellstedt ,

Kolme esitelmää (Pohjois-Karjalan, Kymen ja Etelä-Savon riistanhoitopireissä) ja useita yleistajuisia haastatteluja lehtiin, mm. Suomen luonto, Itä-Savo, Savonmaa, Länsi-Savo, Puruvesi, Karjalainen, Ase & Erä-lehti, Paavo Hellstedt, 01.01.2006 → 31.12.2011, Finland

Jenni Hottola ,

Liimatainen, M., Manninen, O., Mustonen, R. & Harkki, S. 2006. Metsä-Lapin suojelemattomat metsäerämaat., Jenni Hottola, 01.02.2006 → 31.12.2011, Finland

Helsingin sanomat, Jenni Hottola, 01.05.2007 → 31.12.2011, Finland

Jonna Katajisto ,

YLE1 Aamutelevisio, Jonna Katajisto, 01.01.2003 → 31.12.2011, Finland

Ympäristölehti, Jonna Katajisto, 01.01.2003 → 31.12.2011, Finland

Nuorten suurpetoleiri, Kuhmo, Jonna Katajisto, 03.09.2004 → 31.12.2011, United Kingdom

Tiede, Jonna Katajisto, 01.01.2004 → 31.12.2011, United Kingdom

Vantaan Luonnonystävät, Petoilta, Jonna Katajisto, 06.04.2004 → 31.12.2011, United Kingdom

Helsingin Sanomat, Jonna Katajisto, 07.06.2006 → 31.12.2011, Sweden

Helsingin Sanomat, Jonna Katajisto, 02.04.2007 → 31.12.2011, Italy

Karhun kannoilla - samaanien jäljillä näyttelyn yleisöluennot, Jonna Katajisto, 13.04.2007 → 31.12.2011, Italy

Karjaan Suomenkielisen Kansalaisopiston kuukauden yleisöluento, Jonna Katajisto, 11.12.2007 → 31.12.2011, Italy

Keski-Suomen Riistanhoitopiirin neuvottelupäivät, Jonna Katajisto, 27.01.2007 → 31.12.2011, Italy

Lemmikki 11/2007, Jonna Katajisto, 01.11.2007 → 31.12.2011, Italy

Matkaan (VR:n asiakaslehti), Jonna Katajisto, 05.07.2007 → 31.12.2011, Italy

Universitas Helsingiensis, Jonna Katajisto, 01.01.2007 → 31.12.2011, Italy

YLE uutiset, Jonna Katajisto, 05.06.2007 → 31.12.2011, Italy

Yliopistolehti, Jonna Katajisto, 01.02.2007 → 31.12.2011, Italy

Ylä-Satakunta, Jonna Katajisto, 04.01.2007 → 31.12.2011, Italy



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Kristjan Niitepõld ,

Hämeen Sanomat, Kristjan Niitepõld, 27.09.2006 → 31.12.2011, Netherlands

Otso Ovaskainen ,

WWF fores conservation seminar, Otso Ovaskainen, 01.04.2000 → 31.12.2011, Finland

HUB - Helsinki University Bulletin, Otso Ovaskainen, 01.01.2008, Finland

Tanjona Harivelo Ramiadantsoa ,

Madagaskar ur ett lokalt perspektiv, Tanjona Harivelo Ramiadantsoa, 05.2010, Finland

Tomas Roslin ,

A propos 4/2005, Tomas Roslin, 2005, Finland

Helsingin Sanomat 11.11.2005, Tomas Roslin, 11.11.2005, Finland

Hufvudstadsbladet 11.11.2005, Tomas Roslin, 11.11.2005, Finland

Maaseudun Tulevaisuus, Tomas Roslin, 2005, Finland

Åbo Underrättelser 11.11.2005, Tomas Roslin, 11.11.2005, Finland

Aamulehti 17.8.2007, Tomas Roslin, 17.08.2007, Finland

Baptria: Tulossa: uusi kirja lantakuoriaisista, Tomas Roslin, 2007, Finland

Eläinmaailma 4/2007, Tomas Roslin, 2007, Finland

Finlands Natur 3/2007, Tomas Roslin, 2007, Finland

Helsingin Sanomat 17.6.2007, Tomas Roslin, 17.06.2007, Finland

Helsingin Sanomat 21.8.2007, Tomas Roslin, 21.08.2007, Finland

Hufvudstadsbladet 10.6.2007, Tomas Roslin, 10.06.2007, Finland

Hufvudstadsbladet 10.6.2007, Tomas Roslin, 10.06.2007, Finland

Luonnon Tutkija 2/2007, Tomas Roslin, 2007, Finland

Maaseudun Tulevaisuus, 13.4.2007, Tomas Roslin, 13.04.2007, Finland

Metsälehti 8/2007, Tomas Roslin, 2007, Finland

Suomen Luonto 6/2007, Tomas Roslin, 2007, Finland

Yliopisto 4/2007, Tomas Roslin, 2007, Finland

Alasatakunta 1/2008, Tomas Roslin, 2008, Finland

HUB, Helsinki University Bulletin 2/2008, Tomas Roslin, 2008, Finland

Hämeen Sanomat 16.6.2008, Tomas Roslin, 16.06.2008, Finland

Kaleva 8.6.2008, Tomas Roslin, 08.06.2008, Finland

Kittilälehti 25/2008, Tomas Roslin, 2008, Finland

Maaseudun Tulevaisuus 18.6.2008, Tomas Roslin, 18.06.2008, Finland

Matkaan 8/2008, Tomas Roslin, 2008, Finland

Tiede 7/2008, Tomas Roslin, 2008, Finland

Uusi Rovaniemi 25.6.2008, Tomas Roslin, 25.06.2008, Finland

Yliopisto 9/2008, Tomas Roslin, 2008, Finland

Ympäristö 4/2008, Tomas Roslin, 2008, Finland

Dmitry Schigel ,

poster, Kasvitieteen Kevät Kaisaniemessä, Kasvimuseon Avoimet Ovet -yleisötahtuma, Dmitry Schigel, 14.05.2004 → 31.12.2011, Finland

Janne Sundell ,

Lehtihaastattelu: Acta Universitatis Helsingiensis, Janne Sundell, 01.01.2002 → 31.12.2011, Finland



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Suomen Luonto, Janne Sundell, 01.01.2002 → 31.12.2011, Finland
Lehti, Janne Sundell, 01.08.2003 → 31.12.2011, Czech Republic
Etelä-Savon karhun metsästäjien kokous, Janne Sundell, 01.08.2004 → 31.12.2011, United Kingdom
Keski-suomalainen - lehti, Janne Sundell, 01.01.2005 → 31.12.2011, Germany
Savonmaa -lehti, Janne Sundell, 06.04.2005 → 31.12.2011, Germany
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Keski-suomalainen, Janne Sundell, 13.10.2006 → 31.12.2011, Finland
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Itä-Savo, Janne Sundell, 15.04.2007 → 31.12.2011, United States
Kannonkosken-Kivijärven riistanhoitoyhdistyksen kokous, Janne Sundell, 22.02.2007 → 31.12.2011, United States
Keski-suomalainen, Janne Sundell, 20.07.2007 → 31.12.2011, United States
Metsästys ja kalastus, Janne Sundell, 01.01.2007 → 31.12.2011, United States
Pohjois-Hämeen riistanhoitopiirin kokous, Janne Sundell, 22.11.2007 → 31.12.2011, United States
Savonlinnan seudun hirvenmetsästäjien kokous, Janne Sundell, 11.04.2007 → 31.12.2011, United States
Etelä-Savon riistanhoitopiirin yleisötilaisuus karhuista, Janne Sundell, 01.06.2008 → 31.12.2011, Australia
Kouluvierailu, Janne Sundell, 01.04.2008 → 31.12.2011, Australia
Lehtihaastattelu, Koti-Kajaani, Janne Sundell, 01.09.2008 → 31.12.2011, Australia
Lehtihaastattelu, Länsi-Savo, Janne Sundell, 01.06.2008 → 31.12.2011, Australia
Lehtihaastattelu, Metsästys ja kalastus, Janne Sundell, 01.06.2008 → 31.12.2011, Australia
Lehtihaastattelu, Puruvesi, Janne Sundell, 01.09.2008 → 31.12.2011, Australia
Lehtihaastattelu, Viiden kunnan sanomat, Janne Sundell, 01.08.2008 → 31.12.2011, Australia
Magazine interview on bear behaviour, Janne Sundell, 02.2010, Finland
Magazine interview on bear behaviour, Janne Sundell, 04.2010, Finland
Magazine interview on bear behaviour, Janne Sundell, 04.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 02.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 03.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 04.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 04.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 04.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 05.2010, Finland
Newspaper interview on bear behaviour, Janne Sundell, 07.2010, Finland

Participation in radio programme

Riikka Kaartinen ,

Radio Suomi, Luontoretki (radio-ohjelma), Riikka Kaartinen, 21.09.2008, Finland

Jonna Katajisto ,

YLE Radio Suomi Luontoilta, Jonna Katajisto, 27.12.2005 → 31.12.2011, Sweden

YLE radio 1 tiedeuutiset, Jonna Katajisto, 01.01.2006 → 31.12.2011, Sweden

YLE radiouutiset, Jonna Katajisto, 01.01.2006 → 31.12.2011, Sweden



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Tomas Roslin ,

Tieteen viikko, Tomas Roslin, 11.11.2005, Finland
Ajantasa, Tomas Roslin, 16.05.2007, Finland
Radiohuset, Tomas Roslin, 05.04.2007, Finland
Tieteen viikko, Tomas Roslin, 29.03.2007, Finland
Ajantasa, Tomas Roslin, 06.06.2008, Finland
Kvanthopp, Tomas Roslin, 22.10.2008, Finland
Radio Suomi / Ajantasa, Tomas Roslin, 06.06.2008, New Zealand
Radio Vega / Kvanthopp, Tomas Roslin, 22.10.2010, New Zealand
Yle Radio 1, Tomas Roslin, 30.09.2010, Finland

Janne Sundell ,

Radio Suomi, tiedeuutiset, Janne Sundell, 02.09.2005 → 31.12.2011, Germany
YLE Etelä-Savon radio, Janne Sundell, 01.01.2006 → 31.12.2011, Finland
YLE Radio Keski-Suomi, Janne Sundell, 10.10.2006 → 31.12.2011, Finland
YLE Radio Keski-Suomi, Janne Sundell, 11.10.2006 → 31.12.2011, Finland
YLE Etelä-Savon radio, Janne Sundell, 01.01.2007 → 31.12.2011, United States
YLE Etelä-Savon radio, Janne Sundell, 01.01.2007 → 31.12.2011, United States
Radiohaastattelu, YLE Etelä-Savon radio, Janne Sundell, 01.03.2008 → 31.12.2011, Australia
Radiohaastattelu, YLE Etelä-Savon radio, Janne Sundell, 01.04.2008 → 31.12.2011, Australia

Participation in TV programme

Ilkka Hanski ,

Prisma TV-ohjelma, Ilkka Hanski, 01.10.2005, United Kingdom

Jonna Katajisto ,

TV/Arto Nyberg, Jonna Katajisto, 22.04.2007 → 31.12.2011, Italy

Tomas Roslin ,

Prisma Studio, Tomas Roslin, 10.11.2005, Finland
Prisma Studio, Tomas Roslin, 31.08.2005, Finland
Ekolokero, Tomas Roslin, 29.08.2006, Finland
Aamu-tv, Luonto lähellä, Tomas Roslin, 27.08.2007, Finland
Prisma Studio, Tomas Roslin, 28.03.2007, Finland
Aamu-tv, Luonto lähellä, Tomas Roslin, 23.06.2008, Finland
Krökka rummet (Tieteen koukerot), Tomas Roslin, 04.12.2008, Finland

Janne Sundell ,

YLE TV1 Ykkösen aamu-TV, Janne Sundell, 12.10.2006 → 31.12.2011, Finland
YLE TV2 Alueutiset, Janne Sundell, 11.10.2006 → 31.12.2011, Finland
TV interview on bear behaviour, Janne Sundell, 04.2010, Finland

Participation in interview for web based media

Joona Lehtomäki ,

Interview at Metson Polku web site, Joona Lehtomäki, 28.06.2010



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Tomas Roslin ,

A propos: Viestin viejät, Tomas Roslin, 12.06.2006, Finland

BioPop!: Suomen lantakuoriaista on ilmestynyt uusi kirja, Tomas Roslin, 28.03.2007, Finland

Tietysti.fi: Lantakuoriaisista näkyvät ympäristön muutokset, Tomas Roslin, 14.02.2008, Finland

Tietysti.fi, Tomas Roslin, 18.11.2009, Finland

Dmitry Schigel ,

Käävät kiinnostavat kovakuoriaisia – ja ne tutkijoita, Dmitry Schigel, 14.11.2005, Finland

Forschung im Regenwald, Dmitry Schigel, 28.06.2010, Germany



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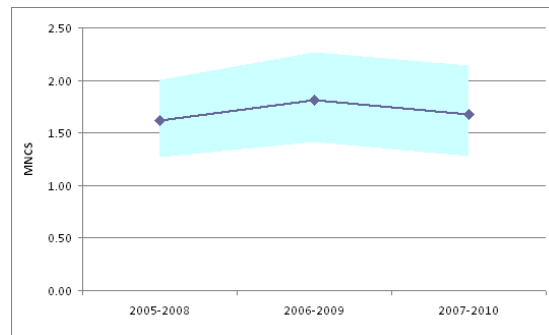
Web of Science(WoS)-based bibliometrics of the RC's publications data 1.1.2005-31.12.2010
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Research Group: Hanski I

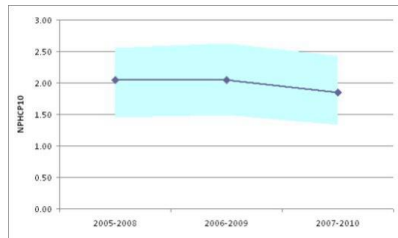
Basic statistics

Number of publications (P)	239
Number of citations (TCS)	2,174
Number of citations per publication (MCS)	9.21
Percentage of uncited publications	21%
Field-normalized number of citations per publication (MNCS)	1.66
Field-normalized average journal impact (MNJS)	1.46
Field-normalized proportion highly cited publications (top 10%)	1.95
Internal coverage	.75

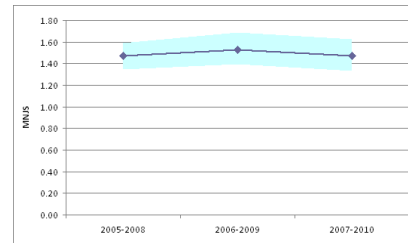
Trend analyses



MNCS

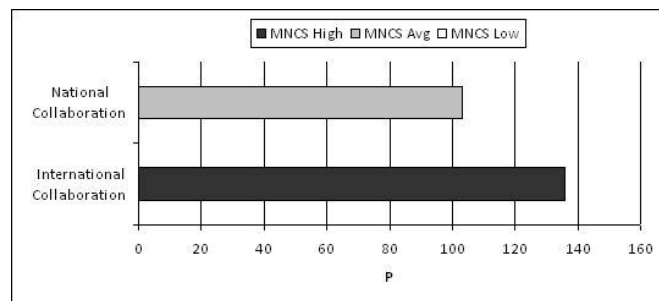


THCP10



MNJS

Collaboration



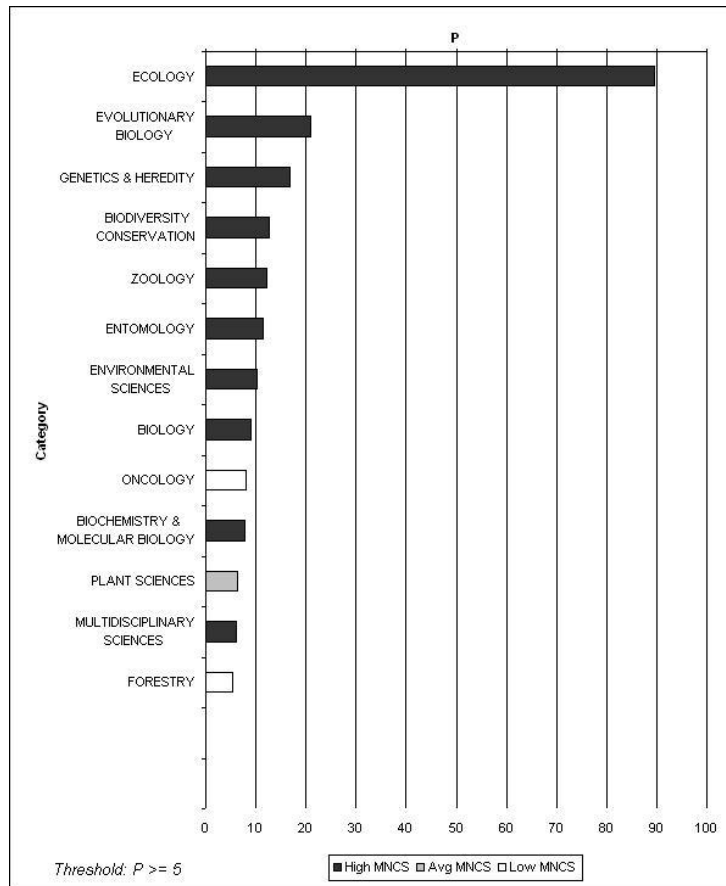
Performance (MNCS) by collaboration type



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Web of Science(WoS)-based bibliometrics of the RC's publications data 1.1.2005-31.12.2010
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