



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

RC-Specific Evaluation of INBIOS – Integrative Biodiversity Science

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 INBIOS – Integrative Biodiversity Science	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: biodiversity, environmental change, evolution, ecology, systematics, geoinformatics
Participation category: 4. Research of the participating community represents an innovative opening	
RC's responsible person: Rikkinen, Jouko	
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 focus of this researcher community (RC) is an interdisciplinary approach towards biodiversity process in terrestrial ecosystems. For this the RC has formed a potential interdisciplinary group to investigate this topic from different aspects and linking the topic from global to microscopic scale or even below. This is a very ambitious goal but a promising future research direction. The disciplines connected to this RC can provide a very broad research access to the biological biodiversity topic. The integrative approach of the RC is the only possible way to cover the biodiversity topic in a holistic way and bridge the research gaps between the different disciplines. For a fully holistic approach the social sciences are missing in this RC, however the RC states that they are open for more research groups. To include social sciences in this multidisciplinary RC would surely improve the research capacities for the biodiversity topic. In addition, this would be in alignment with their own definition that the scientific information provided by their research should support management, planning and policy. Nevertheless the RC has to be careful not getting too large because this might negatively influence the productivity of the RC (connections get loose).

The strength of this RC is surely its multi-disciplinarity and rather good success getting research funding. They fully realize the potential such an interdisciplinary RC has for innovative biodiversity research. However, even though the report describes very well the different research field in the RC, it is not emphasized the integrative research between the different groups. The report gives the impression that each group carries out its own research and a linked approach is missing. The report describes comprehensive research on single plant, molecular or genetic level while the integrative smaller scale level is not really pictured. On the other hand, the publications indicate that there is also a lot of research carried out on smaller scales focusing on habitats and growing systems.

The idea of an integrated research approach is convincing, however the implementation of real integrative research in RC seems not assured.

The number of publications is high however the bibliometrics exhibit some weaknesses in scientific publication. Especially those fields which are described as the core like genetics, biochemistry and molecular biology need to be improved to get internationally more visible.

The concepts of inter-disciplinarity (ID) and multi-disciplinarity (MD) appear here as in many other RCs. If by ID one means a deeper interaction between disciplines (ultimately after a long process even a partial merging of two disciplines into new ones as biochemistry or geoinformatics), it would be useful that patterns and degrees of ID were somehow demonstrated. Even in a less demanding MD, where disciplines are working together investigating a single focus field (like biodiversity as an example of a very large field) using their own theories and methods, there should be some evidence of the coordination of the cooperation and a synthesis of the results of the disciplines involved in the final publication. Without a concrete track of some degree of interaction the MD does not exist in reality.

Numeric evaluation: 3 (Very good)

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

The number of PhD students is adequate and it seems that there is no problem during Bachelor and Master courses to produce enough interest to find PhD applicants. On one hand the report describes good success to obtain funding for the PhD students, while on the other hand one of the identified weaknesses is the lack of funding. Therefore the statement on funding is a little confusing. A real strength of this RC is the intensive pedagogical training the researchers have experienced. This will of course enhance the doctoral training. It is also of advantage that all supervisors are also researchers however this is mostly the case for university education.

The guiding strategy to have self-organized learning and to integrate the students in teaching is of benefit to the students, however it should be taken care that PhD students need certain amount of supervision in order to stay focused. The relationship of self-regulation and curriculum is not clearly described but needs comprehensive consideration. Unfortunately a description how the doctoral training is organized and implemented is missing although in general it follows the University of Helsinki (UH) / Finnish guidelines and regulations.

Progress in MD/ID is perhaps easier to implement in teaching and doctoral training, although also these areas will benefit from the accounts of best practices in MD/ID research (research based-teaching). In fact, the RC has been able to employ the results of MD research on teaching and learning in higher education. Besides the pedagogical aspects, the e-learning resources have been given considerable attention by the RC.

RC commits high administrative burden by their members. This seems to retain scientific productivity and therefore it should be discussed if it is possible to reduce some of this administrative burden within the RC. The problem, of course, largely is that of the university.

Numeric evaluation: 3 (Very good)

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

The RC understands its societal impact especially in teaching and educating society. This is clearly true, however their societal impact is also based on their wide and good functioning network. With the research focus on biodiversity there is a responsibility to take this topic to policy and public. The RC tries to respond to this by working together with policy and a number of organizations and to deliver to the public information about their research. It seems that the RC community is doing a very good job here. They also

like to respond to this task in future by close cooperation with governmental organizations and innovative teaching methods like e-learning for a wider audience. Another project with a strong societal impact is the new research station in Kenya, first of its kind overseas at the UH.

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 has a good and functional network and has international collaboration to countries distributed over all continents. One of the highlight is for sure the station in Kenya. This will be of high benefit to the RC.

It would have been of interest to see the extent of exchange between the researchers in the RC and researchers from other organizations. The RC claims high mobility but this is not well explained. Does this mean researchers go abroad for longer time or just for attending project meetings?

A problem they highlight is the lack of proper sabbatical leave, as it often provides space for longer stays abroad, it has a potential to strengthen international networking and collaboration. Again, this is the UH level issue.

Numeric evaluation: 3.5 (Very good)

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 RC describes excellent facility conditions for their work. They have enough laboratories, computers and other equipment to do their research. Due to the excellent facility conditions, the interdisciplinary research is well supported from this side. However, the operational conditions are deteriorated by high teaching and administrative loads. This to some extent hinders the ability to push the research forward.

The RC requests longer teaching free periods. To the panel's understanding, in relation to doctoral training this would be contra-productive due to the fact that intensive doctoral training will boost the research quality. Doctoral students are very innovative with their ideas and the RC should try to make most benefit out of this by intensive supervision.

Although only briefly mentioned, the Viikki Research Group Organization may be a collective vehicle to solve problems and develop collaboration at campus level.

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

There is no clear leadership structure in this RC. Even though it is of benefit to have an open, non-hierarchical environment, normally a management structure helps to channel the ideas and to establish supportive activities. For this it is recommended to have a non-hierarchical but well working management structure in order to be most efficient in the implementation and functioning of ideas and activities. Especially for RC with such an integrative character it seems that functioning and clear structures are necessary. There seems to be a lot of management potential in this RC which could be better used.

That said, it must be taken into account that many of the RC senior members are said to have a wide management and administrative leadership experiences at the UH so it well may be that the chosen management strategy fits into the present, rather early phase of internal collaboration. Plans, such as interdisciplinary degree programme "Integrative Biodiversity Science" may need stronger organizational approach.

As a strength, effective communication structures are described for this RC, however no information on their organization is given.

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 RC seems to have (had?) a relatively good funding situation in regard to external funding. Most of the funding comes from different Finnish ministries, the Academy of Finland and some domestic (international) foundations. This indicates that some of the work is also oriented along practical problems. There is a lack of funding from the European community. However, funding problems were emphasized several times earlier, in particular for the junior members of the RC, and also related to UH internal funding.

Due to the research topic, this situation should surely be improved.

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 RC wants to improve their range of expertise and strengthen joint research themes and training programs. They intend to have an increased level of interaction. According to this they have clearly identified some of their current weaknesses. They need to establish a more integrative biodiversity research which covers a research topic from different perspectives showing the interactions and dependencies. They would like to strengthen the leadership and adopt a more systematic approach to operations. This probably is the key for success and would call for clear management structures.

In the area of doctoral training a key programme planned is that of “Integrative Biodiversity Science” mentioned earlier. The need for that has arisen from the earlier international evaluation of education. The strategy outlines the needed and planned actions in that regard, including the need to consider important perspectives of the employment of doctoral students.

Related to that a question needs to be raised whether such a programme is intended to be integrated beyond departmental and faculty borders of this RC, as biodiversity is the focus of many other RCs as well. A notion of an RC being a potential core community in this plan may refer to that. If so, UH may certainly be able to construct a strong international and inter/multidisciplinary programme on that topic by connecting advanced research with innovative pedagogics and communication.

A further option for this kind of programme is to investigate the possibilities for more intensive collaboration with other European universities and faculties in the field, for the application of Erasmus Mundus MSc degree programme, which presently also includes possibilities for PhD scholarships for the applying students.

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

The RC has the potential to take up the challenging questions on biodiversity research today. They are constituted exactly in a way that can best face the challenges of future research needs. However, right now the interactions and integrative approaches (including multidisciplinary and interdisciplinary activities) are probably not focused enough to achieve best results.

New and more efficient structures are needed to improve, and more holistic research approaches have to be considered. An open question is to what extent networking and collaboration is already occurring and needed between this RC and other RCs having focus on biodiversity and biodiversity conservation research. Is the existing division of work already in balance with needs and possibilities? At least the RC seems to keep doors open if values can be agreed upon. Of course, this is a question the other relevant RCs should likewise consider. In addition, the RC should get better linked to other European research groups in the frame of European research projects.

Numeric evaluation: 3.5 (Very good)

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

The description is quite short and therefore no details are provided. It seems there was a concentration on the core team who produced and revised the report. It is true that it is more productive if only a core team works on a report although a cascading system might have given the chance to collect the ideas of all RC members before making a condensed report.

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

Focus area 3: The changing environment – clean water

The RC INBIOS reflects the UH's focus areas very well. With INBIOS, there is the chance to cover the defined focus areas and the idea of an integrated and interdisciplinary research approach.

2.12 RC-specific main recommendations

- There seems to be lack of integration over different scales, the group needs to close the gap between small and large scale projects.
- More focus on integrated projects in order to achieve a holistic approach.
- The research of the different disciplines should be more focused on one research topic.
- The group might consider a change in category 5.

2.13 RC-specific conclusions

This RC represents an interesting attempt at bringing together a diverse set of areas with the potential to produce a strong and multidisciplinary research program but the program requires further development before the benefits are likely to be realized. The doctoral training has some commendable guiding principles but it will take further development before candidates will start to feel part of this RC. The RC is well connected to the community and has an interesting interaction with Kenya. Time management needs to be improved to allow researchers the ability to combine teaching and research more effectively. There seems to be potential to expand the funding base of this RC.

2.14 Preliminary findings in the Panel-specific feedback

This RC represents an interesting combination of expertise from diverse areas focused on an important issue and with the potential to develop some strategic research directions. The RC needs further development, but the Panel thought that there was potential particularly if funding can be obtained from different sources and the RC can develop a management structure to facilitate interactions among members.

2.15 Preliminary findings in the University-level evaluation

There is an issue around consistency of doctoral training and an improved definition of the RC concept raised by this report.

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:

Integrative Biodiversity Science (INBIOS)

LEADER OF THE RESEARCHER COMMUNITY:

Professor Jouko Rikkinen, 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)



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RC-SPECIFIC STAGE 1 MATERIAL (registration form)

1 RESPONSIBLE PERSON

Name: Rikkinen, Jouko

E-mail:

Phone: 050-4150426

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

Street address: PL 65 (Viikinkaari 1)

2 DESCRIPTION OF THE PARTICIPATING RESEARCHER COMMUNITY (RC)

Name of the participating RC (max. 30 characters): Integrative Biodiversity Science

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

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): INBIOS is a new multi- and interdisciplinary research community focusing on processes that shape biodiversity in terrestrial ecosystems. As an integral part of research it strives to familiarize doctoral students with the wide range of different tools and approaches that can be used in the study of biological diversity, and its evolution, ecology and conservation from species level to that of ecosystems. Strengthening existing collaborations will have a great effect on the quality and impact of our research and research training.

Our principal investigators work in three faculties (Faculty of Biological and Environmental Sciences, Faculty of Agriculture and Forestry, Faculty of Science) and in the Finnish Museum of Natural History, and have excellent, complementary competence in the field, laboratory and theoretical aspects of biodiversity research. Together we can tackle globally important, large-scale biodiversity issues, and through our extensive national and international collaborations we will have a strong impact on biodiversity knowledge and can provide our students with a truly global frame of reference.

We are actively involved in a wide range of research, including the genetic diversity, systematics and evolutionary biology of bacteria, fungi, animals and plants, population and community ecology, in situ and ex situ conservation, and management of biodiversity data. We also study biotic and abiotic interactions, stresses, reaction mechanisms, adaptation, environmental cues and acclimation, not to mention anthropogenic effects and spatial dynamics, and pedagogical issues related to biodiversity teaching in higher education.

The value of our integrative research community is not only in the diversity of disciplines involved and tools at hand, but also in the wide spectrum of spatial, temporal, physiological and evolutionary scales. We believe that bridging gaps between these scales is an important key in obtaining novel results and in advancing scientific biodiversity knowledge. Through our doctoral training program we aim to educate



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highly skilled experts with a deep understanding of biodiversity science and competence in its practical
applicat

3 SCIENTIFIC FIELDS OF THE RC

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

RC's scientific subfield 1: Biodiversity Conservation

RC's scientific subfield 2: Evolutionary Biology

RC's scientific subfield 3: Ecology

RC's scientific subfield 4: Geosciences, Multidisciplinary

Other, if not in the list: geoinformatics

4 RC'S PARTICIPATION CATEGORY

Participation category: 4. Research of the participating community represents an innovative opening

Justification for the selected participation category (MAX. 2200 characters with spaces): The research aims and educational goals of INBIOS are very timely. The rapid decline in forest cover and the widespread destruction of other habitat types have led to a global acceleration in species extinction rates. Along with the projected climate change, further environmental deterioration and new threats to biodiversity are expected. Yet, biodiversity is an unquestionable prerequisite for healthy ecosystems.

Our research expands from biodiversity inventories to the study of factors that change the composition of ecological communities and how these changes affect the dynamic stability of core ecosystem functions, such as carbon fixation, as well as natural resource production, water retention and purification and other ecosystem services. We provide that is urgently needed for ecosystem based biodiversity management, conservation planning and policy responses.

Each principal investigator in our community has training and experience in one or more disciplines needed in global biodiversity science. Although there are many long-lasting collaborations among INBIOS members, we recognize that combining now our skills, knowledge and scientific interests creates something more than just a conventional research community: our merged efforts represent a new opening that can tackle global biodiversity questions in an integrative manner and further improve the already high standards of biodiversity research in the University of Helsinki.

Our research responds to urgent demands for knowledge needed in biodiversity conservation and the sustainable use of natural resources. Our INBIOS community is young, but all affiliated researchers share the common goal of rapidly reaching the cutting edge in international biodiversity science.

INBIOS offers affiliated PIs and other senior researchers a stimulating and innovative, multidisciplinary research environment, peer support, and a wide network of national and international contacts. As important contributing members of the community, doctoral students obtain integrative skills, develop into



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versatile and responsible experts in their respective fields, and obtain all the skills needed in an international research c

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):
Integrative Biodiversity Science (INBIOS) is a multi- and interdisciplinary research community focusing on processes that shape biodiversity in terrestrial ecosystems. Through our wide and complementary expertise we can tackle globally important, large-scale biodiversity issues, and through our extensive national and international collaborations we will have a strong impact on biodiversity knowledge and can provide our doctoral students with a truly global frame of reference. Doctoral training is an integral part of INBIOS, and the aim is to educate highly skilled experts with a deep understanding of biodiversity science and competence in its practical applications.

The research aims and educational goals of INBIOS are very timely. The rapid decline in forest cover and the widespread destruction of other habitat types have led to a global acceleration in species extinction rates. Along with the projected climate change, further environmental changes and more severe threats to biodiversity are expected. Yet, biodiversity is an unquestionable prerequisite for the healthy functioning of ecosystems. The value of our integrative research community is not only in the diversity of disciplines involved and tools at hand, but also in the wide spectrum of spatial, temporal, physiological and evolutionary scales. We believe that bridging gaps between these scales is an important key in obtaining novel results and in advancing scientific biodiversity knowledge.

Our research helps not only to provide biodiversity inventories but to identify abiotic and biotic factors that change the composition of ecological communities and how these changes affect the dynamic stability of core ecosystem functions, such as carbon fixation, as well as natural resource production, water retention and purification and other ecosystem services. Our research provides scientific information that is urgently needed in ecosystem-based biodiversity management, conservation planning and policy responses. To fully utilize the new knowledge, efficient dissemination of research results to scientists, decision makers and the general public is of prime importance.

Significance of the RC's research and doctoral training for the University of Helsinki (MAX. 2200 characters with spaces): Biodiversity is an unquestionable prerequisite for the healthy functioning of ecosystems. INBIOS is a multi- and interdisciplinary research community focusing on processes that shape biodiversity in terrestrial ecosystems. Through our wide and complementary expertise we can tackle globally important, large-scale biodiversity issues, and through our extensive national and international collaborations we will have a strong impact on biodiversity knowledge and can provide our students with a truly global frame of reference. Our doctoral training program aims to educate highly skilled experts with a deep understanding of biodiversity science and competence in its practical applications.

Our research helps not only to provide biodiversity inventories but to identify abiotic and biotic factors that change the composition of ecological communities and how these changes affect the dynamic stability of



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core ecosystem functions, such as carbon fixation, as well as natural resource production, water retention and purification and other ecosystem services. Our research provides scientific information that is urgently needed in ecosystem-based biodiversity management, conservation planning and policy responses. Besides active publishing of original research results for a scientific audience, our RC has a strong track record in disseminating scientific knowledge to the general public in the form of popular science articles, field guides, Internet resources and through appearances in the media.

Each member of our research community has considerable experience on research and training that covers a segment of biodiversity issues. We recognize that combining our skills, knowledge and interests will create something more than just a conventional research community. A merged effort by a committed group of researchers aiming to approach biodiversity research in a truly integrative manner is a new opening that will increase the quality of research and training at the University of Helsinki but that will also respond to national and international demand of better biodiversity knowledge needed for the conservation and sustainable use of natural resources.

Keywords: biodiversity, environmental change, evolution, ecology, systematics, geoinformatics

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): During 2005–2010 all principal investigators and other senior researchers affiliated with our RC have been active in research and doctoral training and many have given major contributions to higher education at graduate and postdoctoral levels. Most of our PIs are permanent faculty in the University of Helsinki and have thus been heavily involved in running our university. Many administrative duties at the departmental, faculty and university levels and important responsibilities at the societal interface have naturally taken some toll in scientific productivity in terms of some indicators of research outputs.

Within the above framework, the quality of research and doctoral training of our RC has been excellent. The principal investigators and other senior researchers have followed the guideline "All teachers will undertake research, and all researchers will teach" – this principle being stated in the strategy of the University of Helsinki. Many important articles have been published in peer-reviewed international scientific journals of relevant fields, our researchers have been active on international forums, including numerous tasks as experts, reviewers, program managers and collaborators, and they have been successful in obtaining funding for various projects. Details of research and training outputs will be provided in the complete set of evaluation materials.

Our doctoral training is based on scholarly research and our teaching as a whole is founded on results from multidisciplinary research on teaching and learning in higher education. We have become convinced that blended learning is an effective model when designing learning assignments. We have used it at the student activity, course, program and institutional levels. We emphasize student's self-regulation in learning and research instead of a strictly controlled curriculum. The considerable weight given to



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pedagogical issues is exemplified by the fact that the university lecturer in university pedagogy of the Faculty of Biological and Environmental Sciences is a senior member of our RC. In addition, most of our senior members have pedagogical training, which assures the quality of education.

Comments on how the RC's scientific productivity and doctoral training should be evaluated (MAX. 2200 characters with spaces): We are confident that this evaluation will provide information that will assist our new RC to improve its research and doctoral training. We are open to suggestions and possibly willing to incorporate new researchers and/or research groups, provided that they share our common goals and add value to the existing INBIOS research community.

Our scientific productivity and doctoral training activities will be recorded in the TUHAT database and described in other evaluation materials. We suggest that the whole scope of our scientific activity will be considered, such as peer-reviewed and other publications, scientific expert and reviewer work, collaborations, doctoral training, tutoring of visiting researchers, and diverse participations in other scientific and societal functions, including a large international dimension. We want to emphasize that most of our senior members are permanent faculty in the University of Helsinki and have been heavily involved in running our university, thus representing the core human resources of the University.

In our publishing strategy we put effort into publishing in the most highly appreciated international journals of relevant fields to ensure that the results will reach their target audience. In addition, the results will be communicated in scientific meetings and through personal contacts to ensure wide dissemination. As the applied dimension of our biodiversity research is of prime importance, care will be taken so that the results will be made known not only among researchers, but also among decision makers and people in environmental administration. We will follow the requirement that researchers working at the University of Helsinki deposit copies of their research articles published in academic research journals in the open repository of the University. All produced DNA and protein sequences and related information will be deposited into GenBank and other public databases. Besides original research work, our RC has a strong track record in disseminating scientific knowledge to the general public in the form of popular science articles, field guides, appearances in mass media and information delivered through the Inte

LIST OF RC MEMBERS

NAME OF THE RESEARCHER COMMUNITY:		INBIOS			
RC-LEADER		J. Rikkinen			
CATEGORY		4			
	Last name	First name	PI-status (TUHAT, 29.11.2010)	Title of research and teaching personnel	Affiliation
1	Aphalo	Pedro J.	x	University Lecturer	Faculty of Biological and Environmental Sciences/Dept. Biosciences
2	Blomster	Jaanika	x	University Lecturer	Faculty of Biological and Environmental Sciences/Dept. Environmental Sciences
3	Enroth	Johannes	x	University Lecturer	Faculty of Biological and Environmental Sciences/Dept. Biosciences
4	Hänninen	Heikki	x	Professor	Faculty of Biological and Environmental Sciences/Dept. Biosciences
5	Korpelainen	Helena	x	University Lecturer	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
6	Niskanen	Tuula	x	Postdoctoral Researcher	Faculty of Biological and Environmental Sciences/Dept. Biosciences
7	Pellikka	Petri	x	Professor	Faculty of Science/Dept. Geosciences and Geography
8	Rikkinen	Jouko	x	Professor	Faculty of Biological and Environmental Sciences/Dept. Biosciences
9	Saarinén	Timo		University Researcher	Faculty of Biological and Environmental Sciences/Dept. Biosciences
10	Savolainen	Riitta	x	University Lecturer	Faculty of Biological and Environmental Sciences/Dept. Biosciences
11	Schulman	Leif	x	Professor	Finnish Museum of Natural History
12	Tuittila	Eeva-Stiina	x	Senior Researcher	Faculty of Agriculture and Forestry/Department of Forest Sciences
13	Virtanen	Viivi		University Lecturer	Faculty of Biological and Environmental Sciences
14	Åström	Helena		University Lecturer	Faculty of Biological and Environmental Sciences/Dept. Biosciences
15	Cräutlein von	Maria		Postdoctoral Researcher	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
16	Elishibli	Sakina		Postdoctoral Researcher	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
17	Forsman	Hanna		Doctoral Candidate	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
18	Holm	Christa		Doctoral Candidate	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
19	Huotari	Tea		Doctoral Candidate	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
20	Jansen	Gunther		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
21	Junikka	Leo		Doctoral Candidate	Finnish Museum of Natural History
22	Kaasalainen	Ulla		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
23	Kolehmainen	Johanna		Doctoral Candidate	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
24	Kostamo	Kirsi		Postdoctoral Researcher	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
25	Leppänen	Jenni		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
26	Liimatainen	Kare		Doctoral candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
27	Lundell	Robin		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
28	Majaneva	Markus		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Environmental Sciences
29	Miranto	Mari		Doctoral Candidate	Finnish Museum of Natural History
30	Morales	Luis O.		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
31	Mäenpää	Pia		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Environmental Sciences
32	Olsson	Sanna		Postdoctoral Researcher	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
33	Pietiläinen	Maria		Doctoral Candidate	Faculty of Agriculture and Forestry/Dept. Agricultural Sciences
34	Rasmus	Sirpa		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences/Dept. Biosciences
35	Reunanen	Markku		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Environmental Sciences
36	Robson	T. Matthew		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences/Dept. Biosciences
37	Silvennoinen	Liisa		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
38	Suutari	Milla		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Environmental Sciences
39	Tegelberg	Riitta		Postdoctoral Researcher	Faculty of Biological and Environmental Sciences/Dept. Biosciences
40	Tuovila	Hanna		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences
41	Wang	Fang		Doctoral Candidate	Faculty of Biological and Environmental Sciences/Dept. Biosciences



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RC-SPECIFIC STAGE 2 MATERIAL

BACKGROUND INFORMATION

Name of the RC's responsible person: Rikkinen, Jouko

E-mail of the RC's responsible person:

Name and acronym of the participating RC: Integrative Biodiversity Science, INBIOS

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:

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).**

Integrative Biodiversity Science (INBIOS) is a multi- and interdisciplinary research community focusing its research on processes that shape the biodiversity of ecosystems. Our senior researchers have excellent, complementary competence in the field, laboratory and theoretical aspects of biodiversity research, ranging from systematics and ecology to physiology, molecular biology and modelling. The research of INBIOS teams is very timely, as human-induced changes are an ever increasing concern for ecosystems worldwide. For the development of effective means for the conservation of biodiversity and ecosystems we need a deeper understanding of many biological phenomena associated with environmental changes and adaptation. Due to the multitude of approaches and practical experience from a wide range of organisms and ecosystems, our RC can successfully tackle many different globally important biodiversity issues.

The enclosed list of publications and other research outputs (TUHAT) gives a detailed picture of our recent research. Some main fields of interest have included the following:

- We have studied the diversity, ecology and evolution of cyanobacteria (focus on symbiotic taxa), eukaryotic algae (focus on green and red algae), bryophytes (focus on mosses), vascular plants (focus on tropical and invasive species), arthropods (focus on ants) and fungi (focus on mycorrhizal and lichen-forming species) in terrestrial and aquatic habitats, including, e.g., boreal forests, tropical rainforests and sea ice. Many of these studies have centred on the molecular phylogenetics and taxonomy, character evolution, biogeography and habitat ecology and have included attempts to use taxonomic data in the assessment of the role of target species in ecosystems and in conservation (e.g. the role of botanic gardens, in situ and ex situ conservation, etc.).
- We have initiated DNA barcoding research projects with the final aim of building a barcode database for all eukaryotic biodiversity in Finland. We have already established a database (<http://www.mm.helsinki.fi/elokeha>) that combines barcoding data and the e-learning resource 'Pinkka' (<http://www.helsinki.fi/pinkka>) for identification of species.
- We have studied species interactions in ecological communities with molecular and experimental methods, and focused on the evolutionary history of social parasite-host relationships of ants and on the evolutionary history and ecological roles of symbiotic specificity in lichens and in plant-cyanobacterial symbioses.



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- We have carried out population genetic investigations of stress-responsive genes and other DNA regions in plants (using high-throughput sequencing, genomic and EST sequence analyses, etc.) to gain insights into the roles of different evolutionary factors which shape population genetic structures. We have used ecological genomics to link patterns of genetic variation at functionally important loci to environmental factors affecting these patterns. Our research first targeted red algae and bryophytes, then was extended to crop plants and trees, including important elements of conservation of genetic resources, and to invasive plants.
- We have done observational, experimental and modelling studies on the effects of climate warming on overwintering of boreal plants. The results have shown that small differences in ecophysiological traits can cause drastic differences in species' responses to warming and changes in the thickness and duration of snow cover.
- We have studied UV as a regulator of plant growth and chemistry, the sensing of visible light by plant stomata and its modulation by UV and drought stresses, and variation in shade and drought tolerance. We have transferred knowledge developed first in indoor molecular biology experiments to field conditions. The research has resulted in information on global change effects and has applications in crop management.
- We have studied the functioning of peatland ecosystems in their pristine stage and under different forms of land use in subarctic, boreal and temperate climates. These studies have covered vegetation, carbon and nitrogen dynamics related to long-term succession during peatland development and short-term disturbance succession following fire, drainage or peat mining. In addition to basic science, our studies have covered restoration of human impacted-peatlands in order to restore their biodiversity and carbon sink functioning.
- We have studied land use and environmental change by using remote sensing and geospatial modelling of land cover changes in boreal, temperate and tropical environments (forests, glaciers, rangelands). For example, datasets on forest structure, landscape fragmentation and human settlements have been used in environmental conservation research and community-based natural resource management in the Taita Hills, Kenya.
- We have conducted pedagogical research on learning and teaching in higher education, especially in the biosciences. Here the aim was to produce knowledge for enhancing the quality of learning outcomes of university education, with a practical focus on promoting research-based teaching and learning in biosciences.

Although INBIOS is still young as a formal research community, it does not have any substantial weaknesses. The affiliated researchers have been very successful in their respective fields and share the common goal of conducting cutting-edge research, and have published in some of the best journals. We have followed the guideline "all teachers will undertake research, and all researchers will teach" – this principle being stated in the strategy of the University of Helsinki. Innovation and originality are the key elements of our research. Combining our efforts will create synergies and bring novel insights to our work.

We have published many important articles in peer-reviewed international scientific journals of relevant fields, and we have been active in both national and international forums, including acting as experts, reviewers, meeting participations, programme managers and collaborators, and we have also been



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successful in obtaining funding for various projects. In addition, we have been active in the public and societal dimensions of biodiversity research. Besides original research work, we have a strong track record in disseminating scientific knowledge to the general public. Details of our research outputs are provided in the complete set of evaluation materials (TUHAT).

Biodiversity is declining dramatically at local, regional and global levels. The integrated studies conducted by our RC have a great potential to significantly improve understanding of fundamental aspects of biodiversity. We provide data that is scientifically novel but also urgently needed for ecosystem-based biodiversity management, conservation planning and policy responses. For example, many lines of our research concern the responses and adaptation of organisms under climate change. We aim to improve tools for species identification and to increase reliable knowledge of biodiversity, both forming the core of biodiversity conservation. Finally, for instance, our research on invasive species is highly topical, as biological invasions are considered one of the main threats to local and regional biodiversity worldwide.

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

Coordinating the work of innovative and well-connected scientists in seemingly distant fields will result in stimulating research. Yet, as a rigid master plan could also hinder innovation, we wish to keep our approaches open-ended. Within the diverse field delimited by the interests of our RC members, we can continuously re-evaluate and modify our work, allowing the discovery of the most promising new ideas and findings. A clear benefit of our diversity is that our success will not depend on any single researcher, hypothesis, method or collaborative partner, because there will usually be several ways to implement different tasks.

To further improve our research, we will take the following actions: establishing joint research themes (e.g. studies on invasive species and DNA barcoding), sharing methodological knowledge (e.g. genetics and genomics), publishing in top-class journals and improving communication (e.g. own blog and Facebook group). Since there is a strong link between excellent research and high-quality doctoral training, we will plan a well-structured study programme.

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.

The focal starting points of our doctoral training were defined in the University's Strategic Plan and in the Programme for the Development of Teaching and Studies. The two main principles of the educational philosophy adopted by the University of Helsinki (UH) are research-based education and student-centred teaching. These ideas of the University's strategic plan for education are also reflected in the action plans of the Faculties and other units, including all those represented by different staff members in our RC. However, our RC is committed to high-quality doctoral training not only because of the guidelines set by UH but, first of all, because of own deep motivation. We also recognize that transparent, high-quality training requires appropriate teaching and assessment methods and teachers' pedagogical awareness.

The lecturer of university pedagogy in the faculty of Biological and Environmental Sciences, who has a strong background in biodiversity research (e.g. PhD in plant systematics), is an active member of our



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RC. In general, lecturers of university pedagogy are in charge of the training and guidance of the teaching staff at UH. In our RC, she helps to connect the members with the theoretical and practical support given by the University's Centre for Research and Development of Higher Education – the role of which is to facilitate the implementation of a student-centred learning environment at UH.

Almost all senior staff in our RC actively train undergraduate students and thus do not generally experience difficulties in recruiting promising young researchers for MSc and PhD projects. We recruit doctoral students using standard procedures of advertising vacant posts through mailing lists of Finnish universities and other academic networks (e.g., EvolDir), and interviewing promising applicants. In these processes we emphasize all equal opportunity action plans and programmes implemented by UH, particularly when recruiting students and when encouraging and instructing young researchers in their career choices. All activities of our RC are thus available independent of gender, race, nationality or ethnic group. We frequently get applications from highly qualified foreign students. Unfortunately, although we have had several international students, the raising of adequate funding for these often skilful and motivated applicants is difficult, and relatively few such contacts have led to student recruitment.

Some of our doctoral students have done a significant part of their research in governmental research institutes, such as the Finnish Environment Institute. Others have been linked to graduate schools (e.g. FGSPB, GENECO, GSForest, LUOVA). The graduate schools aim to promote collaboration among their students and offer training (seminars, courses, workshops) in their respective fields and can thus provide useful forums for learning the required research skills. A majority of our doctoral students, however, have not benefitted from graduate schools – partly resulting from insufficient coordination between degree studies and also lack of funding. Some members of our RC feel that the attention directed to the development of existing graduate schools has not yet significantly improved the operational environment of doctoral training and that there is room for improvement when it comes to the funding basis and implementation of such programmes.

Practical training and mentoring have included both scientific research skills and complementary skills, such as learning to design experiments and to conduct field research, to use a wide range of ecological and/or genetic research techniques, to use statistical and bioinformatics methods, and to write and present scientific information for national and international audiences, both academic and general. Specific supervision practices have varied depending on the individual student, topic of the research and collaborative partners. For example, advanced IT skills develop only through the process of data management and analyses, writing and presentation preparation. Working in a research group and sharing laboratory space and facilities with other groups improve communication and language skills. Additional mentoring and research training have been provided by international visitors, regularly hosted by our Principal Investigators (PI), while our RC provides training for visiting students.

We have regularly collected student feedback and used it to improve teaching. We have also invited doctoral students to take part in the planning process and they have had many opportunities to contribute to the improvement of their own study environment. As qualified and motivated teaching staff is critical for any high-quality teaching, we have encouraged our RC members to train themselves in university pedagogy. All graduate students and postdoctoral researchers have had opportunities to gain teaching experience and have been encouraged to seek pedagogical training. Typically they have also been actively involved in the supervision of MSc students. This training process has developed independence in science. The more senior and junior group members interact, the more they will benefit from the diversity of expertise, especially concerning the variety of molecular genetics methodology and bioinformatics tools. To facilitate interaction, regular meetings are organized in the



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different PIs' research groups. In addition, we are developing a new, regular but informal scientific forum for the RC: an own blog and Facebook group are already established to enhance communication in our RC.

In conclusion, each senior member of our RC is responsible, as part of teaching duty, for the quality of her/his teaching and for the assessment of learning outcomes. Concurrently, each doctoral student is also responsible for the progress of her/his studies and learning. In the recent (2007-2008) evaluation of Education at UH, the evaluation panel recommended that the Faculties implement a common Code of Ethics to clearly describe the responsibilities, rules and expectations of students and teachers regarding teaching and studying. Our RC is highly committed to following such ethical guidelines as soon as they become available, and we are willing to actively develop them.

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

Strengths

- high-quality research supporting high-quality training
- high-quality supervision in research and complementary skills
- pedagogical knowledge
- opportunities for multidisciplinary training
- availability of funding (UH, AF, private foundations, etc.)
- open and collegial scientific atmosphere

Challenges

- low rate of internal UH funding
- lack of long-term research funding and vulnerability to funding shortage impeding recruitment of students and development of training programmes
- availability of graduate school schemes

Our RC is committed to following the Strategic Plan and the Programme for the Development of Teaching and Studies at UH, and other recommendations. We aim to train biodiversity specialists with thorough scientific knowledge and a wide range of methodological and complementary skills. The goal is that our graduates will not only thrive academically but are also committed biodiversity specialists working for the benefit of society both in national and international forums. A prerequisite is that we will obtain adequate funding for training.

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).

Following the general principles of UH, our societal interactions have been realised through research, teaching and cooperation based on mutual partnership. Our RC is exceptionally well positioned to take advantage of the versatile skills and competence of its researchers coming from three faculties of UH, the Finnish Museum of Natural History, and the many active networks that connect these and other collaborating institutions with society.



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While our main competence is in basic research and researcher training, we also have experience in designing and delivering tailored educational programmes and research services to meet the needs of the public sector. In these projects, we have collaborated with many governmental organisations, like the Finnish Environment Institute, Finnish National Board of Education, and Ministry of Forestry and Agriculture, as well as with the National LUMA Centre (an umbrella organisation coordinated by the UH Faculty of Science to promote the learning, studying and teaching of natural science, mathematics, computer science and technology on all levels), Palmenia (UH Centre for Continuing Education), NGOs, etc.

We have participated in many projects with excellent results – for example in the development of web-based tools for teaching and dissemination of scientific information on biodiversity, and collaborative inquiry learning methods for biodiversity teaching (www.helsinki.fi/pinkka/, www.mm.helsinki.fi/elokeha/, www.luontoportti.com/suomi/fi/kasvit). We have also worked as specialists for international organisations, i.e. the European Commission and IUCN, and been involved in research and capacity building in developing countries. Prime examples include the Nicaragua-Finland Agrobiotechnology Programme (NIFAPRO 2007–2012), a training programme funded by the Ministry for Foreign Affairs of Finland with an important goal of training local specialists with knowledge of sustainable use of agrobiodiversity, and the pivotal role of RC members in the long process that resulted in the opening of the University of Helsinki TAITA Research Station in Wundanyi, Kenya in January 2011 (<http://blogs.helsinki.fi/terra-kenya/>). This new facility enables multidisciplinary environmental research and education and is actually the first research station overseas owned by UH. It supports study and conservation of biodiversity by enhancing the knowledge-base of the local people about environmental issues through dissemination of research results, empowering the local communities and other stakeholders by enabling them to participate in research projects, and by creating an international forum for individuals and organisations interested in regional research and development possibilities.

Not surprisingly, members of our RC are frequently interviewed in the media and we are also active in writing popular articles, field guides and other non-fiction books for the general public. Like our doctoral training, also our public outreach activities are well rooted in academic research and we feel that these activities and interactions are beneficial to our research and add an important flavour to doctoral training. During outreach activities, members of our RC have acquired valuable skills in project management and administration.

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

Our RC is eager to participate in the construction of a society where learning and knowledge, and especially inputs from biological and environmental sciences, are valued and regarded as important building blocks for a better tomorrow. Our research, training and tasks as experts, tackling important biodiversity issues and having a wide international dimension, are highly relevant. In the future, we plan to continue our work in a similarly innovative and effective manner as before. In close cooperation with our partners, we can plan and implement university-level educational, developmental and research services in many important subject areas linked to biodiversity, both globally and domestically. We believe that the role of continuing education will increase and that the demand for multidisciplinary, internationalisation and student-centred e-learning environments will make our RC a very attractive and productive companion in demand-driven research and development projects.

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



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

Biodiversity science is international by nature; our research questions have global significance, and a great proportion of our field research takes place abroad. Thus, mobility is an integrated part of our activities. Our RC includes international members and also our doctoral students become accustomed to an international academic environment from the very beginning of their career. INBIOS members have been active in both international and national research collaboration, resulting in many co-authorships in scientific publications. We are well connected and actively cooperate with dozens of collaborators in Finland and abroad. We host numerous visitors, including doctoral students, postdoctoral researchers and senior researchers. Likewise, our RC members have participated in international and national research networks (e.g. the Network for Higher Education and Innovation Research), made visits for research, training and collaboration, and actively participated in scientific meetings and workshops.

It is noteworthy that our international contacts are truly global, including researchers and research institutes from Europe, North and South America, Africa, Asia and Australia. We are strong in research and collaboration with partners from developing countries. National collaboration involves researchers and teams within UH and other universities (primarily Universities of Oulu, Turku and Eastern Finland), sectoral research institutes (Finnish Environment Institute, Finnish Forest Research Institute, MTT Agrifood Research), and, to some extent, also NGOs and private companies.

An example of collaboration has been research on forest tree ecology, genetics and physiology between UH and the Chinese Academy of Sciences (CAS). During the evaluation period, we have received about twenty visitors from CAS, most being doctoral students, and great numbers of co-authored papers have been published. Another example is the Nicaragua-Finland Agrobiotechnology Programme in collaboration with agronomists at UH, a development co-operation project funded by the Government of Finland. An important part of this training programme concerns the characterization and sustainable use of Nicaraguan plant genetic resources. INBIOS members have also organized the first national interdisciplinary seminar on winter research and participated in organizing the second seminar, the covered topics ranging from the aesthetics of winter and culture of Sami people to forest tree logging in winter.

Our RC members initiated the recent establishment of TAITA Research Station in Kenya. Rector Thomas Wilhelmsson has emphasized that this is the first research station overseas owned by UH and "part of our Africa strategy", also referring to a Memorandum of Understanding that was signed between UH and the University of Nairobi in January 2011. Researchers at the University of Nairobi, National Museums of Kenya and the Kenya Forestry Service have greeted the new facility with satisfaction and seen that these new actions open great opportunities for research collaboration and exchange of staff and students. To further facilitate practical research collaboration, members of our RC have also established a new NGO in Kenya (Taita Environmental Research and Resource Arc, TERRA).

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

Strengths

- high-quality research with international recognition and good facilities
- good opportunities for multidisciplinary collaborations
- availability of high-quality supervision
- availability of funding schemes (UH, CIMO, AF, etc.)



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- open and collegial scientific atmosphere
- good language skills: besides Finnish and Swedish, everybody fluent in English and some in other languages (French, German, Spanish, Arabic, Chinese, Swahili)

Challenges

- low rate of internal UH funding
- lack of long-term research funding and vulnerability to funding shortage impeding the recruitment of doctoral students and postdoctoral fellows, and development of collaborations
- lack of a proper sabbatical leave system

Our collaborative activities and mobility are extensive. Along with our joint research themes, we will continue both international and national co-operation, as collaboration and mobility are an integral part of our biodiversity research with a truly global frame of reference. Joining our efforts is expected to result in increased resources for such activities.

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).

Facilities available in UH are mostly excellent for carrying out top-level research. Laboratories, technical support, computer equipment and support, and library services are generally very good. Departments at the Faculty of Agriculture and Forestry have fully equipped molecular biological and experimental laboratories, and the Faculty of Biological and Environmental Sciences and the Finnish Museum of Natural History have good facilities for molecular (including the MES-laboratory in Viikki) and experimental work. Also the Dept. of Geosciences and Geography in the Faculty of Science has modern facilities and access to extensive monitoring station networks.

The Viikki campus provides core facilities including, e.g. high-throughput DNA sequencing, oligonucleotide synthesis, as well as growth chambers, greenhouses and experimental fields. Additionally, we have access to the collections and expertise of the Finnish Museum of Natural History, facilities of research stations in Lammi, Hyytiälä and Tvärminne in Southern Finland and in Kilpisjärvi in Lapland, and the recently established Taita Research Station in Kenya. Finland's most powerful supercomputing environment, CSC, provides computing and information services. Connections to the Finnish Environment Institute give us access to the research vessel Aranda and sea ice laboratory.

In pedagogical questions we get support from UH Centre for Research and Development of Higher Education, which facilitates the implementation of a student-centred learning. Members of our RC run and develop the e-learning environments 'Pinkka' and 'Elokehä'. This work is well grounded in faculty and department level programmes for the development of teaching and studies, and as one indication of high quality, the Pinkka project received 'The University of Helsinki Teaching Technology Prize' in 2006.

External funding is crucial for high-quality research. Our major source of funding has been the Academy of Finland, but significant amounts have been obtained from the competitive UH Funds. Other funding sources have been different ministries and private foundations in Finland and elsewhere. Minor amounts of funding have come from the national agency TEKES, which almost solely supports rapid



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applications directly benefiting the society and industry. In a recent consortium application, involving two INBIOS members, the Academy of Finland granted about one million Euros with additional 0.4 million Euros coming from UH for developing sequencing and genotyping infrastructure on the campus. Besides the funding administered through UH and listed in Section 7 (almost five million Euros), our RC members have received other competitive funding totalling about half a million Euros during 2005–2010, mainly from private foundations.

Most of our PIs are permanent faculty in UH and have been heavily involved in running the university. Many administrative duties at the departmental, faculty and university levels and important responsibilities at the societal interface have taken countless working hours. In addition, many RC members have a heavy teaching load, further reducing time available for research. Some of these problems could be eased by improving the balance between research, teaching and administration duties.

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

Strengths

- state-of-art research equipment and technology platforms
- opportunities for multidisciplinary collaborations
- open and collegial scientific atmosphere
- most RC members are within walking distance from each other

Challenges

- insecurity in the funding system
- acquirement of more international funding
- shortage of some facilities, e.g. growth chambers
- exceedingly heavy teaching and administrative load
- lack of a proper sabbatical leave system

Enough time should be guaranteed for research by dividing teaching evenly and getting more support from other staff. Longer teaching-free periods are needed each year. Another prerequisite is satisfactory funding. Joining our efforts is expected to increase funding, also from international sources. Although infrastructure issues are partly taken care of by the campus-level strategy, actions by individual researchers are necessary for efficient planning. It is noticeable that increased collaboration may open up through the Viikki Research Group Organization, where some INBIOS members are already active.

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 leadership and management of INBIOS RC consist of good academic leadership combined with efficient operational management, enabling us to work towards jointly agreed objectives. We have



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extensive experience in science at large and understanding of the social significance of science, as well as a thorough knowledge of the structures of the organisation and an ability to recognise change processes and actively promote them. Yet, the most important assets of INBIOS are the competence of the participants and its open, non-hierarchical and supportive environment. The primary strategy is to continue to foster this positive research environment, and have a process-oriented attitude rather than a top-controlled and heavy management structure. We have largely independently operating research groups, but that fact does not prevent collaboration and the development of joint research themes and training programmes.

Open discussion between researchers is used in an integrated manner in the planning processes and setting future research targets – the meetings help in planning and offer important collective insights into the management and development of research and doctoral training practices at the Department and Faculty levels. Participation in this discussion is open to all researchers in our RC, and all major decisions and common plans, including implementation and selection of responsible persons, are communicated to all RC staff and students.

Our RC participants have gained substantial leadership and management experience through many tasks. The most important experience of most PIs naturally comes from the activities relating to their own research, leading a research group and collaborating with Finnish and foreign colleagues, but also through work as directors and deputies of different units and programme managers, mainly in an academic setting but also in the private sector. In addition, we have developed and led quality assurance programmes, covering everything from decision making and human services to teaching and research activities at UH. Besides practical experience, some of us have acquired training by taking short intensive courses or completing wider programmes, such as the advanced and comprehensive professional leadership programme available for UH managers.

We agree with the panel of the Evaluation of Education at UH (2007-2008), which found that our university must balance the need for student choice and flexibility with teaching loads. The panel also pointed out that multidisciplinary degree programmes need special attention and that such programmes are much more than just a wide choice of studies. Yet, before new doctoral students are accepted, steps should be taken to ensure that sustainable student demand and employment opportunities exist. The evaluation panel also pointed out that the management of degree programmes at HU would become more transparent if a specific group of teachers, possibly from different departments, is identified as the core faculty or board of studies for each programme. We feel that our RC has all key attributes for it to function as a core community in the future development of an interdisciplinary degree programme around “Integrative Biodiversity Science”.

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

Strengths

- experience in leadership and management
- open, equal and collegial scientific atmosphere
- commitment of RC participants
- effective communication
- potential to transfer good practises across disciplines



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Challenges

- heavy teaching and administrative load
- implementing strategic plans at a practical level
- understanding different disciplines in a multidisciplinary RC
- short-term and temporary contracts of junior RC members

The primary leadership and management strategy of our RC is to continue to foster the present positive research environment, and to have a process-oriented approach without a top-controlled management strategy. We have several independently operating research groups, but that does not prevent collaboration and the development of joint research themes and training programmes. For the benefit of UH, INBIOS and individual research groups, our RC members are encouraged to join management courses offered by UH. A prime concern for us and UH is the short-term and temporary nature of most work contracts available for the junior RC members.

7 EXTERNAL COMPETITIVE FUNDING OF THE RC

- 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: 3530000
- 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: 70000
- 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: 10000
- 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: 0
- 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: Kone Foundation, Maj and Tor Nessling Foundation, Walter and Andree de Nottbeck Foundation, Finnish Cultural Foundation, Otto A. Malm Foundation
 - total amount of funding (in euros) from the above-mentioned foundations: 450000
- 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:
 - total amount of funding (in euros) from the above-mentioned funding organizations: 0



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- 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: University of Helsinki Research Funds, Ministry of Trade and Industry, Ministry of Environment, Ministry of Education
 - total amount of funding (in euros) from the above-mentioned funding organizations: 850000

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.

We envision that high-quality research and training develop from interactions among innovative and competent scientists. Within INBIOS, where the major strength is in the concentration of a wide range of expertise in the same RC, we intend to develop joint research themes and training programmes that should contribute to increased levels of interactions, stimulation of grant applications, multidisciplinary doctoral training with clear working life objectives, and dynamic structuring where existing smaller groups can build new groups for specific projects. In this way, we can conduct the best-quality research and training within our focus areas and have an influential role in different outreach activities. Our realistic vision is to be an internationally recognized, cutting-edge unit in biodiversity science by year 2013.

Our joined efforts will create synergies and bring new insights to biodiversity research and training. We appreciate that there is a very clear link between excellent research and high-quality training. However, a rigid master plan should not be allowed to get in the way of research innovation, which is a highly valued attribute in our RC. An important concrete action is to develop joint, multidisciplinary research themes on, e.g. invasive species, DNA barcoding, integration of molecular biology and physiology into field research, adaptation to changing environments, the role of information flow in organismal interactions, use of ecological modelling to address biodiversity issues, and research on bioscience teaching and learning in higher education. Besides developing joint research themes, we will enhance communication among research groups, establish regular meetings of all RC members for presenting and discussing advances and problems, explore and share experiences on new techniques for research and teaching, and initiate new joint funding applications. Additionally, we have found that informal brainstorming sessions on specific subjects and problems can be highly fruitful.

During 2007-2008 UH carried out an international evaluation of education. The panel proposed that we should develop a clear strategy for research-based teaching and that the university should enhance the quality of education by focusing on the opportunities offered by the internationalisation of education. The redesign of current degree programmes would offer an opportunity to improve internal cooperation and also incorporate new pedagogical approaches into the new curriculum. The panel pointed out that multidisciplinary degree programmes need special attention. We believe that INBIOS RC could function as a core community in the development of a new multidisciplinary degree programme around the general theme of 'Integrative Biodiversity Research'. We want to emphasize that doctoral training should evolve in harmony with developments at the undergraduate and graduate levels. We also support the finding that a significant contribution to improving the quality of teaching would be to establish a better balance between research and teaching. This can be done by reducing the routine administrative tasks that seriously burden core faculty of our RC today.

We already have plans for the recruitment of an external advisory board that could help ensure the quality and relevance of our biodiversity programme – not least from the perspective of employment



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opportunities of future doctoral students – and to encourage innovation and the adaptation of best practices in research, teaching and societal outreach activities. The advisory board could be made up of academic staff from other institutes and organizations, and HU alumni. Also, from a marketing perspective, the advisory board could help us to define precisely what the special characteristics of a future 'INBIOS doctoral degree' should be. When our RC continues evolving into a multidisciplinary research and degree programme, we need to strengthen our leadership and adopt a more systemic approach to our operations.

We are confident that the Evaluation Panel can assist INBIOS RC in further clarifying its visions on research and doctoral training. We are open to suggestions and willing to include new researchers and research groups, providing that they share common goals and add value to the existing community.

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

All senior members of the INBIOS RC (Aphalo, Blomster, Enroth, Hänninen, Korpelainen, Niskanen, Pellikka, Rikkinen, Saarinen, Savolainen, Schulman, Tuittila, Virtanen and Åström) contributed to the production of the stage 2 materials by providing plentiful information for the evaluation and ideas about the content of the materials. During stage 2, one joint meeting was arranged for the senior RC members and numerous email correspondences were held. RC members Korpelainen and Rikkinen jointly compiled the collected information, after which, based on comments by other senior members, they revised and submitted the materials.



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1 Analysis of publications

- Associated person is one of Pedro Jose Aphalo ,
Heikki Hänninen ,
Petri Pellikka ,
Savolainen ,
Helena Aström ,
Hanna Karttunen, Tea Huotari ,
Kirsi Kostamo ,
Robin Lundell ,
Sanna Olsson ,
Milla Suutari ,
Leo Junikka ,
Leo Junikka ,
Jenni Leppänen ,
Markus Majaneva, Mari Miranto ,
Maria Pietiläinen ,
Jouko Rikkinen ,
Jouko Rikkinen ,
Maria Pohjamo ,
Eeva-Stiina Tuittila ,
Ulla Kaasalainen ,
Jenna Leppänen ,
Markus Majaneva, Mari Miranto ,
Sirpa Rasmus ,
Riitta Johanna Tegelberg ,
Johannes Enroth ,
Tuula Niskanen ,
Timo Saarinen ,
Sakina Elshibli ,
Viivi Virtanen ,
Kare Liimatainen ,
Luis Orlando Morales Suarez ,
T
Chang-Fang Wang ,
Riitta

Publication type	Publication year						Total Count 2005 - 2010
	2005	2006	2007	2008	2009	2010	
A1 Refereed journal article	18	28	41	31	43	49	210
A2 Review in scientific journal				1			1
A3 Contribution to book/other compilations (refereed)		1	1	17	8	2	29
A4 Article in conference publication (refereed)	1	1	6	5		1	14
B1 Unrefereed journal article	9	2	1	6	1	5	24
B2 Contribution to book/other compilations (non-refereed)	1	3	2	4	4		14
B3 Unrefereed article in conference proceedings	2	2	2	2	6	1	15
C1 Published scientific monograph				1			1
C2 Edited book, compilation, conference proceeding or special issue of journal			1		3	1	5
D1 Article in professional journal	6	3	3	1	2	3	18
D2 Article in professional hand or guide book or in a professional data system, or text book material					9	1	10
D3 Article in professional conference proceedings				1			1
D4 Published development or research report		2					2
D5 Text book or professional handbook or guidebook or dictionary	2		1		1		4
E1 Popular article, newspaper article	10	14	16	5	7	6	58
E1 Popular contribution to book/other compilations			3	52	16	5	76
E2 Popular monograph	4		2	5	5	1	17
I1 Audiovisual materials	1	1	7	7	4	4	24
I2 ICT programs or applications	1						1



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2 Listing of publications

A1 Refereed journal article

2005

- Hänninen, H, Kolari, P, Hari, P 2005, 'Seasonal development of Scots pine under climatic warming: effects on photosynthetic production', **Canadian Journal of Forest Research**, vol 35, no. 9, pp. 2092-2099.
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- Peng, YH, Lu, Z, Chen, K, Luukkanen, O, Korpelainen, H, Li, C 2005, 'Population genetic survey of Populus cathayana originating from southeastern Qinghai-Tibetan Plateau of China based on SSR markers', **Silvae Genetica**, vol 54, pp. 116-122.
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Enroth, J 2009, 'Komealupiini', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki**.

Enroth, J 2009, 'Aavikot: Kuivuus määrää elämisen tahdin', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki**, pp. 30-35.

Enroth, J 2009, 'Magnoliakasvit, Magnoliaceae', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki**.

Enroth, J 2009, 'Laavakalvat', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Helsinki**.

Enroth, J 2009, 'Purppuramantukämmekkä', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki**.

Enroth, J 2009, 'Ilmakehän happi-hiilitasapaino.: Elän perusaineiden vuoristorata', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki**.



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

RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

INBIOS/Rikkinen

Enroth, J 2009, 'Etelänpyökki, suku Nothofagus', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki.**

Enroth, J 2009, 'Tymit, Hippophae', in M Piirainen, J Enroth, R Vauras, H Väre (eds), **Luonnossa. Kasvit 3., Weilin + Göös, Helsinki.**

Leskelä, A (ed.), Soikkeli, S (ed.), Rikkinen, J 2009, 'Illustrator in book (Orvokki, lehdokki, vuokko ja moni muu. Ihanat kukkalaulut): Cover art and all other illustrations (Plant photographs)', **Orvokki, lehdokki, vuokko ja moni muu. Ihanat kukkalaulut., F-kustannus, Hämeenlinna.**

Piirainen, M (ed.), Rikkinen, J 2009, 'Luonnossa. Kasvit 4', in M Piirainen (ed.), **Luonnossa.. Kasvit 4., vol. 4, Weilin + Göös, Porvoo.**

2010

Kokkonen, T, Rikkinen, J 2010, 'Illustrator in web performance (Chronopolitics — III Memo of Time, 2010—): Lichen photographs', **Chronopolitics — III Memo of Time, 2010—.**

Pirttijärvi, A, Rikkinen, J 2010, 'Illustrator in book (Missä Vika? Vika-nimisen kylän historia): Nature photograph', **Missä Vika? Vika-nimisen kylän historia.**

Rikkinen, J 2010, 'Illustrator in book (Suomen lasten luontokirja): Plant photographs', **Suomen lasten luontokirja, Otava, Keuruu.**

Rikkinen, J, Rikkinen, J 2010, 'Illustrator in book (Puut ja pensaat Suomen luonnossa): Cover art and all other illustrations (Plant photographs)', **Puut ja pensaat Suomen luonnossa, Otava, Keuruu.**

Sarvilinna, A, Sammalkorpi, I, Rikkinen, J 2010, 'Illustrator in book (Ympäristöopas 2010 Rehevöityneen järven kunnostus ja hoito): Plant photographs', **Ympäristöopas 2010 Rehevöityneen järven kunnostus ja hoito, Suomen ympäristökeskus (SYKE).**

E2 Popular monograph

2005

Leppänen, J 2005, *Jahtimailla: Riistanisäkkäät: Orava – metsän akrobaatti.*, **Weilin + Göös.**

Schulman, L, Björkstén, J, Lipponen, V, Roine, E 2005, *Botanic Garden: an oasis in the centre of Helsinki*, **Helsinki University Botanic Garden, Helsinki.**

Schulman, L, Björkstén, J, Lipponen, V, Roine, E 2005, *Kasvitieteellinen puutarha: keidas keskellä Helsinkiä*, **Helsingin yliopiston kasvitieteellinen puutarha, Helsinki.**

Schulman, L, Björkstén, J, Lipponen, V, Roine, E 2005, *Botaniska trädgården: en oas i centrum av Helsingfors*, **Helsingfors universitets botaniska trädgård, Helsingfors.**

2007

Rikkinen, J 2007, *Värien puutarha (Herbaceous garden ornamentals)*, **Otava, Helsingissä.**

Tran Minh, M, Laaka-Lindberg, S, Junikka, L, Alanko, P, Hinneri, S, Juslen, A, Piippo, S, Ryömä, R, Silvennoinen, L, Stenroos, S 2007, *Lomakasvio: trooppisten koristekasvien tunnistusopas*, **Multikustannus, [Helsinki].**

2008

Enroth, J 2008, *Luonnossa, Kasvit 1: Useita artikkeleita: esim. Maakasvien alkuperä ja evoluutio, eliökunnan luokittelu*, vol. 1, **Weilin + Göös.**

Piirainen, P, Schulman, L, Hällfors, M 2008, *En oas i centrum av Helsingfors: universitetets botaniska trädgårds samlingar i Kajsaniemi*, **Ulmus, no. 9**, vol. Del 1, **Helsingfors universitet, Botaniska trädgården, Helsingfors.**

Piirainen, P, Schulman, L 2008, *Keidas keskellä Helsinkiä: - yliopiston kasvitieteellisen puutarhan Kajsaniemen-kokoelmat, osa I*, **Ulmus / Helsingin yliopisto, Kasvitieteellinen puutarha, no. 9, Luonnontieteellinen keskusmuseo, Kasvitieteellinen puutarha, Helsinki.**

Rikkinen, J 2008, *Värid aiias (Herbaceous garden ornamentals)*, **Kirjastus Varrak, Tallinn.**

Rikkinen, J 2008, *Jäkkälät ja sammalet Suomen luonnossa (Finnish lichens and bryophytes)*, 1-2. painos edn, **Otava.**

2009

Leppänen, J 2009, *Luonnossa nisäkkäät 1: Orava – pihapiirin tuttu pörröhäntä.*, **Weilin + Göös.**

Leppänen, J 2009, *Luonnossa nisäkkäät 1: Liito-orava on öisen latvuston huimapää.*, **Weilin + Göös.**

Schulman, L 2009, *From Cloudberry to Amur Cherry: Kumpula Botanic Garden*, **Ulmus, no. 12, University of Helsinki, Helsinki.**

Schulman, L 2009, *Från lingonris till taigaros: Gumtåkt botaniska trädgård*, **Ulmus, no. 11, Helsingfors universitet, Botaniska trädgården, Helsingfors.**



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RC-SPECIFIC TUHAT COMPILATIONS OF PUBLICATIONS DATA 2005-2010

INBIOS/Rikkinen

Schulman, L **2009**, *Salaatista sasabambuun: Kumpulan kasvitieteellisen puutarhan yleisopas*, **Ulmus, no. 10, Helsingin yliopisto, Kasvitieteellinen puutarha, Helsinki.**

2010

Rikkinen, J **2010**, *Puut ja pensaat Suomen luonnossa: Finnish trees and shrubs*, **Otava, Helsingissä.**

I1 Audiovisual materials

2005

Suomen orkideat, CD-ROM

2006

Botanical E-learning material (Basic plant species identification course): Kasvituntemus I. Kasvilajintuntemuksen peruskurssia tukeva Open Access -verkkomateriaali

2007

Botanical E-learning material (Native medicinal plants in Finland): Luonnonvaraiset lääkekasvit. Farmakognosian opiskelua tukeva Open Access -verkkomateriaali

Maatalouslajintuntemukset (KASV451 4 op, KASV451 3 op): Maatalous-metsätieteellisen tiedekunnan Suomen maatalousympäristöjen kasvilajistoa koskevia lajintuntemuskursseja tukevat Open Access -verkkomateriaalit

Metsälajintuntemukset (KASV148 ja KASV150): Maatalous-metsätieteellisen tiedekunnan Suomen metsien kasvilajistoa koskevia lajintuntemuskursseja tukevat Open Access -verkkomateriaalit

Puutarhakasvien lajintuntemus: Puutarhakasvien opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Basic mushroom identification course): Sienituntemus. Sienilajintuntemuksen peruskurssia tukeva Open Access -verkkomateriaali

Botanical E-learning material (Spring flowering garden ornamentals): Keväällä ja alkukesällä kukkivia puutarhakasveja. Puutarhakasvien opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Orchids of Finland): Suomen kämmekät. Suomen kämmekkälajiston opiskelua tukeva Open Access -verkkomateriaali

2008

Botanical E-learning material (Common garden bryophytes): Puutarhan ja pihapiirin sammalet. Sammallajiston opiskelua tukeva Open Access -verkkomateriaali, <http://www.helsinki.fi/pinkka/>

Elokehä (web resource)

Botanical E-learning material (Macrolichens of Finland): Suomen suurjäkälät. Suomen jäkälälajiston opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Macaronesian plants): Macaronesian kasvit. Makaronesian kasvilajiston opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Plants of western North America): Läntisen Pohjois-Amerikan kasveja. Läntisen Pohjois-Amerikan kasvilajiston opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Conifers of the World): Maapallon havupuut. Havupuulajiston opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Liverworts of Finland): Suomen maksasammalet. Suomen maksasammallajiston opiskelua tukeva Open Access -verkkomateriaali

2009

Botanical E-learning material (Edible and toxic forest mushrooms in Finland): Kauppasienet ja myrkkysienet. Suomen sienilajiston opiskelua tukeva Open Access -verkkomateriaali, <http://www.helsinki.fi/pinkka/>

Botanical E-learning material (Morphological adaptation in angiosperms): Siemenkasvien morfologinen adaptaatio. Siemenkasvien morfologisen adaptaation kurssia tukeva Open Access -verkkomateriaali

Botanical E-learning material (The 100 most common vascular plants species in Finland): Suomen sata yleisintä kasvia. Suomen putkilokasvilajiston opiskelua tukeva Open Access -verkkomateriaali, <http://www.helsinki.fi/pinkka/>



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INBIOS/Rikkinen

Botanical E-learning material (Woody plants of Kumpula Botanical Garden): Kumpulan kasvitieteellisen puutarhan puuvartiset kasvit. Puiden ja pensaiden opiskelua tukeva Open Access -verkkomateriaali

2010

Botanical E-learning material (Vascular plants of Finland). Kasvituntemus II: Kasvilajintuntemuksen omatoimista opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Vascular plants of southwestern Finland): Ahvenanmaan ja lounaisaariiston kasvit. Lounais-Suomen kasvilajiston omatoimista opiskelua tukeva Open Access -verkkomateriaali

Botanical E-learning material (Plants and animals of East Africa): Taitavuorten tutkimusaseman biodiversiteettisivut. Itä-Afrikan kasvi- ja eläinlajiston opiskelua tukeva Open Access -verkkomateriaali, <http://www.helsinki.fi/pinkka/>

Botanical E-learning material (Vascular plants of northern Finland): Lapin kasvit. Pohjois-Suomen kasvilajiston omatoimista opiskelua tukeva Open Access -verkkomateriaali

I2 ICT programs or applications

2005

T-Puska, tieteellisille puutarhoille suunniteltu kasvitietokanta, MS-Access



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

INBIOS/Rikkinen

1 Analysis of activities 2005-2010

- Associated person is one of Pedro Jose Aphalo ,
Heikki Hänninen ,
Petri Pellikka ,
Savolainen ,
Hanna Karttunen, Tea Huotari ,
Matthew Robson ,
Jaanika Blomster ,
Helena Korpelainen ,
Jouko Rikkinen ,
Helena Aström ,
Leo Junikka ,
Kirsi Kostamo ,
Robin Lundell ,
Sanna Olsson ,
Milla Suutari ,
Maria Pohjamo ,
Eeva-Stiina Tuittila ,
Ulla Kaasalainen ,
Jenni Leppänen ,
Markus Majaneva, Mari Miranto ,
Maria Pietiläinen ,
Riitta Johanna Tegelberg ,
Johannes Enroth ,
Tuula Niskanen ,
Timo Saarinen ,
Viivi Virtanen ,
Sakina Elshibli ,
Kare Liimatainen ,
Luis Orlando Morales Suarez ,
T
Sirpa Rasmus ,
Chang-Fang Wang ,
Riitta

Activity type	Count
Supervisor or co-supervisor of doctoral thesis	46
Prizes and awards	6
Editor of research journal	85
Editor of research anthology/collection/conference proceedings	3
Peer review of manuscripts	186
Editor of communication journal	4
Editor of series	4
Editor of special theme number	1
Assessment of candidates for academic posts	11
Membership or other role in review committee	37
Membership or other role in research network	15
Membership or other role in national/international committee, council, board	102
Membership or other role in public Finnish or international organization	18
Membership or other role of body in private company/organisation	4
Other tasks of an expert in private sector	1
Participation in interview for written media	145
Participation in radio programme	31
Participation in TV programme	28
Participation in interview for web based media	3



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INBIOS/Rikkinen

2 Listing of activities 2005-2010

Supervisor or co-supervisor of doctoral thesis

Pedro Jose Aphalo ,

PhD thesis supervision, Pedro Jose Aphalo, 01.03.2006 → 07.05.2010, Finland

PhD thesis supervision, Pedro Jose Aphalo, 2007 → ..., Finland

PhD thesis supervision, Pedro Jose Aphalo, 2009 → ..., Finland

Jaanika Blomster ,

Supervision of Ph.D.-studies on sea ice eukaryotes, Jaanika Blomster, 01.01.2007 → ..., Finland

Supervision of Ph.D.-studies on the taxonomy, ecology and geographical distribution of desmids, Jaanika Blomster, 2008 → ..., Finland

Supervision of Ph.D.-studies on the toxic dinoflagellate *Alexandrium ostenfeldii*, Jaanika Blomster, 01.01.2008 → ..., Finland

Johannes Enroth ,

Supervision of doctoral thesis, Johannes Enroth, 01.01.2004 → 15.02.2008, Germany

Supervision of doctoral thesis, Johannes Enroth, 01.01.2007 → 30.11.2010, China

Helena Korpelainen ,

Doctoral dissertation, Helena Korpelainen, 2000 → ...

Doctoral Dissertation, Helena Korpelainen, 2001 → 2008

Doctoral dissertation, Helena Korpelainen, 2002 → 2008

Doctoral Dissertation, Helena Korpelainen, 2003 → 2009

Doctoral dissertation, Helena Korpelainen, 2003 → 2008

Doctoral dissertation, Helena Korpelainen, 2005 → ...

Doctoral dissertation, Helena Korpelainen, 2007 → ...

Doctoral dissertation, Helena Korpelainen, 2010 → ...

Doctoral dissertation, Helena Korpelainen, 2010 → ...

Petri Pellikka ,

Supervision of doctoral thesis, Petri Pellikka, 01.01.2005 → 31.12.2005, Germany

Supervision of doctoral thesis, Petri Pellikka, 01.01.2005 → 31.01.2005, Germany

Supervision of doctoral thesis, Petri Pellikka, 01.01.2006 → 31.12.2006, Finland

Supervision of doctoral thesis, Petri Pellikka, 01.01.2008 → 31.12.2008, Finland

Alemu Gonsamon jatko-opintojen ohjaus, Petri Pellikka, 2010 → ...

Barnaby Clarkin jatko-opintojen ohjaus, Petri Pellikka, 2010 → ...

Mika Siljanderin jatko-opintojen ohjaus, Petri Pellikka, 2010 → ...

Jouko Rikkinen ,

PhD-thesis supervisor, Jouko Rikkinen, 2006 → ...

PhD-thesis supervisor, Jouko Rikkinen, 2008 → ...

PhD-thesis supervisor, Jouko Rikkinen, 2008 → ...

PhD-thesis supervisor, Jouko Rikkinen, 2009 → ...

Riitta Savolainen ,

Doctoral thesis supervision of Gunther Jansen, Riitta Savolainen, 01.04.2005 → 30.06.2009

Doctoral thesis supervision of Jenni Leppänen, Riitta Savolainen, 2005 → ...



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INBIOS/Rikkinen

Leif Schulman ,

Supervision of doctoral thesis (Nelly Llerena), Leif Schulman, 2005 → ..., Finland
Supervision of doctoral thesis (Nunu Pesu), Leif Schulman, 2005 → 2008, Finland
Supervision of doctoral thesis (Leo Junikka), Leif Schulman, 2006 → ..., Finland
Supervision of doctoral thesis (Mari Miranto), Leif Schulman, 2006 → ..., Finland
Supervision of doctoral thesis (Outi Lähteenoja), Leif Schulman, 2007 → ..., Finland
Supervision of doctoral thesis (Teija Alanko), Leif Schulman, 2007 → ..., Finland

Eeva-Stiina Tuittila ,

Supervision of a PhD student, Eeva-Stiina Tuittila, 2002 → 2005, Ireland
Supervision of a PhD student, Eeva-Stiina Tuittila, 2003 → 2006, Ireland
Supervision of a PhD student, Eeva-Stiina Tuittila, 2004 → 2008
Supervision of a PhD student, Eeva-Stiina Tuittila, 2004 → 2011
Supervision of a PhD student, Eeva-Stiina Tuittila, 2006 → ...
Supervision of a PhD student, Eeva-Stiina Tuittila, 2009 → ...
Supervision of a PhD student, Eeva-Stiina Tuittila, 2009 → ..., Czech Republic
Supervision of a PhD student, Eeva-Stiina Tuittila, 2010 → ...

Viivi Virtanen ,

Supervision of doctoral thesis, Viivi Virtanen, 01.01.2007 → 31.12.2007, Finland

Riitta Johanna Tegelberg ,

Supervision of doctoral thesis, Riitta Johanna Tegelberg, 01.01.2008 → 31.12.2008, Argentina

Prizes and awards

Johannes Enroth ,

Bronze Medal awarded by the Finnish Biological Society Vanamo, Johannes Enroth, 2009
Teacher of the Year 2008, Johannes Enroth, 31.03.2009

Petri Pellikka ,

Suomalaisen Tiedeakatemian jäsenyys, Petri Pellikka, 2010 → ..., Finland

Jouko Rikkinen ,

The University of Helsinki Teaching Technology Prize, Jouko Rikkinen, 2006

Viivi Virtanen ,

Opetusteknologiapalkinto 2006, Viivi Virtanen, 31.12.2006, Finland

Chang-Fang Wang ,

First-class of Excellent bachelor thesis in Hubei Province, Chang-Fang Wang, 06.2007, China

Editor of research journal

Johannes Enroth ,

Acta Botanica Fennica, Johannes Enroth, 01.01.2005 → 31.12.2005, Finland
Annales Botanici Fennici, Johannes Enroth, 01.01.2005 → 31.12.2005, Finland
Bryobrothera, Johannes Enroth, 01.01.2005 → 31.12.2005, Finland
Journal of Bryology, Johannes Enroth, 01.01.2005 → 31.12.2005, United Kingdom
Acta Botanica Fennica, Johannes Enroth, 01.01.2006 → 31.12.2006, Finland
Annales Botanici Fennici, Johannes Enroth, 01.01.2006 → 31.12.2006, Finland



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INBIOS/Rikkinen

Journal of Bryology, Johannes Enroth, 01.01.2006 → 31.12.2006, United Kingdom

Acta Botanica Fennica, Johannes Enroth, 01.01.2007 → 31.12.2007, Finland

Annales Botanici Fennici, Johannes Enroth, 01.01.2007 → 31.12.2007, Finland

Bryobrothera, Johannes Enroth, 01.01.2007 → 31.12.2007, Finland

Journal of Bryology, Johannes Enroth, 01.01.2007 → 31.12.2007, United Kingdom

Heikki Hänninen ,

Boreal Environment Research, Heikki Hänninen, 23.05.2005 → 31.12.2005, Finland

Canadian Journal of Forest Research, Heikki Hänninen, 26.01.2005 → 31.12.2005, Canada

Tree Physiology, Heikki Hänninen, 01.01.2005 → 31.12.2005, Canada

Tree Physiology, Heikki Hänninen, 07.06.2005 → 31.12.2005, Canada

Agricultural and Forest Meteorology, Heikki Hänninen, 01.01.2006 → 31.12.2006, Netherlands

Conservation Biology, Heikki Hänninen, 16.12.2006 → 31.12.2006, United Kingdom

Forest Ecology and Management, Heikki Hänninen, 16.03.2006 → 31.12.2006, Netherlands

Global Change Biology, Heikki Hänninen, 20.04.2006 → 19.07.2006, United Kingdom

Loustau, D. & Reviron, M-P. (eds.), Response of temperate and Mediterranean forests to climate change: effects on carbon cycling, productivity and vulnerability, Heikki Hänninen, 03.06.2006 → 31.12.2006, France

New Phytologist, Heikki Hänninen, 25.04.2006 → 31.12.2006, United Kingdom

Tree Physiology, Heikki Hänninen, 01.01.2006 → 31.12.2006, Canada

Tree Physiology, Heikki Hänninen, 01.01.2006 → 31.12.2006, Canada

Agricultural and Forest Meteorology, Heikki Hänninen, 21.06.2007 → 31.12.2007, Netherlands

Boreal Environment Research, Heikki Hänninen, 21.03.2007 → 31.12.2007, Finland

Global Change Biology, Heikki Hänninen, 03.04.2007 → 31.12.2007, United Kingdom

International Journal of Biometeorology, Heikki Hänninen, 11.06.2007 → 31.12.2007, Samoa

New Phytologist, Heikki Hänninen, 31.10.2007 → 31.12.2007, United Kingdom

Oikos, Heikki Hänninen, 06.02.2007 → 31.12.2007, United Kingdom

Scandinavian Journal of Forest Research, Heikki Hänninen, 04.06.2007 → 31.12.2007, United Kingdom

Tellus B, Heikki Hänninen, 30.03.2007 → 31.12.2007, United Kingdom

Tree Physiology, Heikki Hänninen, 01.01.2007 → 31.12.2007, Canada

Tree Physiology, Heikki Hänninen, 23.05.2007 → 03.07.2007, Canada

Canadian Journal of Forest Research, Heikki Hänninen, 04.01.2008 → 31.12.2008, Canada

Global Change Biology, Heikki Hänninen, 31.01.2008 → 04.03.2008, United Kingdom

Tuula Niskanen ,

Karstenia, Tuula Niskanen, 2008 → 2010, Finland

Petri Pellikka ,

Boreal Environmental Research, Petri Pellikka, 01.08.2005 → 31.08.2005

Computers and Geosciences, Petri Pellikka, 01.12.2005 → 31.12.2005, United States

Fennia, Petri Pellikka, 01.03.2005 → 31.03.2005, Finland

Journal of Environmental Management, Petri Pellikka, 01.06.2005 → 30.06.2005, United States

Photogrammetric Journal of Finland, Petri Pellikka, 01.01.2005 → 31.12.2005, Finland

Terra, Petri Pellikka, 01.10.2005 → 31.10.2005, Finland

Kuwait Journal of Science and Engineering, Petri Pellikka, 01.08.2006 → 31.08.2006, Kuwait

Photogrammetric Engineering & Remote Sensing, Petri Pellikka, 01.06.2006 → 30.06.2006, United States



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Photogrammetric Journal of Finland, Petri Pellikka, 01.01.2006 → 31.12.2006, Finland
Tellus B, Petri Pellikka, 01.12.2006 → 31.12.2006
Terra, Petri Pellikka, 01.12.2006 → 31.12.2006, Finland
Ecological Indicators, Petri Pellikka, 01.01.2007 → 31.12.2007, United States
Journal of Applied Earth Observation and Geoinformation, Petri Pellikka, 01.01.2007 → 31.12.2007, United Kingdom
Proceedings of the 9th Scandinavian Research Conference on Geographical Information Science, Petri Pellikka, 01.01.2007 → 31.12.2007, Norway
Remote Sensing of Environment, Petri Pellikka, 01.01.2007 → 31.12.2007, United States
SENSORS, Petri Pellikka, 01.01.2007 → 31.12.2007
The Photogrammetric Journal of Finland, Petri Pellikka, 01.01.2007 → 31.12.2007, Finland
The Photogrammetric Journal of Finland, Petri Pellikka, 01.01.2007 → 31.12.2007, Finland
Applied Optics, Petri Pellikka, 01.01.2008 → 31.12.2008, United States
Forest Ecology and Management, Petri Pellikka, 01.01.2008 → 31.12.2008
Hemispherical photography in Forest Science: Theory, Methods and Applications., Petri Pellikka, 01.01.2008 → 31.12.2008, Canada
International Journal of Applied Earth Observation and Geoinformation, Petri Pellikka, 01.01.2008 → 31.12.2008
International Journal of Applied Earth Observation and Geoinformation, Petri Pellikka, 01.01.2008 → 31.12.2008
Land Degradation and Development, Petri Pellikka, 01.01.2008 → 31.12.2008
Remote Sensing of Environment, Petri Pellikka, 01.01.2008 → 31.12.2008, United States
The Photogrammetric Journal of Finland, Petri Pellikka, 01.01.2008 → 31.12.2008, Finland
International Journal of Applied Earth Observation and Geoinformation, Petri Pellikka, 2010 → ...
International Journal of Applied Geospatial Research, Petri Pellikka, 2010 → ...
Photogrammetric Journal of Finland, Petri Pellikka, 2010 → ...

Jouko Rikkinen ,

Luonnon Tutkija, Jouko Rikkinen, 01.01.2004 → 31.12.2009, Finland

Leif Schulman ,

Luonnon Tutkija, Leif Schulman, 01.01.2005 → 31.12.2005, Finland
Monographs in Systematic Botany from the Missouri Botanical Garden, Leif Schulman, 01.01.2005 → 31.12.2005, United States
Plant Systematics and Evolution, Leif Schulman, 01.01.2005 → 31.12.2005, Germany
Scripta Horti Botanici Universitatis Vytauti Magni, Leif Schulman, 2006 → 2008, Lithuania

Viivi Virtanen ,

Annales Botanici Fennici, Viivi Virtanen, 01.01.2007 → 31.12.2007, Finland
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Jaanika Blomster ,

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Scientia Acta Xavieriana, Helena Korpelainen, 2009, India
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Peer review of manuscript for Behavioral Ecology, Riitta Savolainen, 2005, United Kingdom
Peer review of manuscript for Behavioral Ecology and Sociobiology, Riitta Savolainen, 2006 → 2010
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1 MS review, Luonnon Tutkija, Leif Schulman, 2005
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Conservation ex situ and exhibition in Naples Botanical Garden of wild food plants of the Campania region (Italy), Leo Junikka, 08.10.2010

Ethnobotanic Garden Design in the Ecuadorian Amazon, Leo Junikka, 09.02.2010

Kare Liimatainen ,

Mycotaxon, Kare Liimatainen, 01.01.2006 → 31.12.2006, United States

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Luis Orlando Morales Suarez ,

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Johannes Enroth ,

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Editor of series

Johannes Enroth ,

Bryobrothera, Johannes Enroth, 1994 → 2011, Finland

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Timo Saarinen ,

Editor of Annales Botanici Fennici, Timo Saarinen, 01.01.2005 → 31.12.2010

Leif Schulman ,

Editor-in-Chief, Ulmus (occasional series of Helsinki University Botanic Garden), Leif Schulman, 02.2001 → ...

Editor of special theme number

Leif Schulman ,

Guest Editor, Biodiversity and Conservation SI "EuroGardV", Leif Schulman, 07.2009 → 31.12.2010

Assessment of candidates for academic posts

Jaanika Blomster ,

Evaluation of Dr. Michael Stanhope for indefinite tenure (professorship), Jaanika Blomster, 07.2007 → ..., United States

Heikki Hänninen ,

University of Victoria, British Columbia: promotion to Professor, Heikki Hänninen, 15.11.2008

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Helena Korpelainen ,



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Evaluator of candidates for a faculty position, Helena Korpelainen, 2007
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Dosentti (adjunct professor), Helena Korpelainen, 2010
Evaluation: University researcher posts, Helena Korpelainen, 2010

Membership or other role in review committee

Heikki Hänninen ,

Natural Sciences and Engineering Research Council of Canada (NSERC): evaluation of research proposal, Heikki Hänninen, 14.01.2008
Natural Sciences and Engineering Research Council of Canada (NSERC): evaluation of research proposal, Heikki Hänninen, 31.07.2008
The Finnish Forest Research Institute: evaluation of project proposals, Heikki Hänninen, 23.10.2008
The Finnish Forest Research Institute: member in an advisory panel, Heikki Hänninen, 22.01.2009
European Research Council: Starting Grants, panel member, Heikki Hänninen, 19.08.2010 → 31.12.2010
National Sciences and Engineering Research Council of Canada: Grant proposal evaluation, Heikki Hänninen, 18.07.2010
The International Institute for Applied Systems Analysis (IIASA): evaluation of award candidate, Heikki Hänninen, 30.11.2010

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Funding applications, Helena Korpelainen, 1991 → ...
Funding applications, Helena Korpelainen, 2005, Austria
Ohjausryhmän jäsenyys/Steering Committee, Helena Korpelainen, 2005
Research evaluation, Helena Korpelainen, 2005
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Research evaluation, Helena Korpelainen, 2006
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Jouko Rikkinen ,

Aineenopettajankoulutuksen valintatoimikunta, Jouko Rikkinen, 2005 → ...
Faculty of Biological and Environmental Sciences, Teacher Education (Head of Educational Program), Jouko Rikkinen, 2005 → ...
Faculty of Biosciences Teaching Skills Evaluation Committee, Ecology and Environmental Sciences (Chair), Jouko Rikkinen, 2005 → 2009



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Finnish Environment Institute (SYKE), bryophyte working group, Jouko Rikkinen, 2009 → ...

Maa- ja metsätalousministeriön kansallista vieraslajistrategiaa laativan työryhmän maakasvit alatyöryhmä, Jouko Rikkinen, 2009 → 2011

Viikin tiedekirjaston BHL-Europe ja digitointihankkeen ohjausryhmä (chair), Jouko Rikkinen, 2009 → ...

Faculty of Biological and Environmental Sciences Teaching Skills Evaluation Committee (Chair), Jouko Rikkinen, 2010 → ...

Faculty of Biological and Environmental Sciences, Teaching and Studies Committee (Expert), Jouko Rikkinen, 2010 → ...

Vuoden tiedekirja -palkinto (arviontiraadin jäsen), Jouko Rikkinen, 2010

Riitta Savolainen ,

Editorial board of the magazine Luonnon Tutkija, Riitta Savolainen, 2007 → ...

Leo Junikka ,

LTKM:n yksikönjohtajien rekrytointi, Leo Junikka, 05.2010 → 09.2010, Finland

T Matthew Robson ,

Biodiversity, Ecosystem and Agriculture panel (SVSE 7) of the non thematic programme of the French National Research Agency., T Matthew Robson, 24.03.2010, France

Membership or other role in research network

Pedro Jose Aphalo ,

Reviewer for UNEP report, Pedro Jose Aphalo, 2006

COST Action FA0906 UV4growth (Management committee member), Pedro Jose Aphalo, 01.03.2010 → 08.02.2011

Reviewer of UNEP report, Pedro Jose Aphalo, 2010

Jaanika Blomster ,

Member of Nordic Network on Sea Ice Research - NetICE, Jaanika Blomster, 2008 → ...

Advisor in GENECO - Graduate Research School in Genomic Ecology, Jaanika Blomster, 2009 → ..., Sweden

Helena Korpelainen ,

Network for bryological research, Helena Korpelainen, 2002 → 2005

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Research organization, Helena Korpelainen, 2003 → ...

Graduate school membership, Helena Korpelainen, 2006 → ...

International training program, Helena Korpelainen, 2007 → 2012, Nicaragua

Network membership (TreeBOL), Helena Korpelainen, 2008 → ...

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Tuula Niskanen ,

Yhteispohjoismainen UNITE mykorrhitsageenipankki, vastuualueena huopaseitikit, Tuula Niskanen, 01.01.2005 → 31.12.2010

Maria Pohjamo ,

Network for bryological research, Maria Pohjamo, 2002 → 2005

Kare Liimatainen ,

Yhteispohjoismainen UNITE mykorrhitsageenipankki, vastuualueena huopaseitikit, Kare Liimatainen, 01.01.2005 → 31.12.2010

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

Pedro Jose Aphalo ,

British Ecological Society, Pedro Jose Aphalo, 01.01.2005 → 31.12.2010, United Kingdom

Scandinavian Society of Plant Physiology, Pedro Jose Aphalo, 01.01.2005 → 31.12.2010



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Jaanka Blomster ,

Board member, Jaanka Blomster, 2006 → ..., Finland

Johannes Enroth ,

Finnish Bryological Society, Johannes Enroth, 01.01.2000 → 31.12.2011

Council of the Faculty of Biological and Environmental Sciences, Johannes Enroth, 2010 → 2012, Finland

Management Board of the Finnish Museum of Natural History, Johannes Enroth, 2010 → 2013

Heikki Hänninen ,

International Union of Forest Research Organizations (IUFRO), Unit 2.01.14 Cold and drought hardiness, Heikki Hänninen, 01.01.2005 → 31.12.2005, Austria

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Metsäntutkimuslaitos, seminaarin Risto Sarvas. 100-vuotisjuhlaseminaari (Punkaharju, 15.-16.10.2008) järjestelytoimikunta, Heikki Hänninen, 01.06.2008 → 31.12.2008, Finland

Metsäntutkimuslaitos, tutkimusohjelman Metsäekosysteemien toiminta ja metsien käyttö muuttuvassa ilmastossa hakemusten arviointipaneeli, Heikki Hänninen, 23.10.2008 → 31.12.2008, Finland

and Engineering Research Council of Canada (NSERC). Lausunto kahdesta tutkimusrahoitushakemuksesta., Heikki Hänninen, 14.01.2008 → 31.07.2008

Helena Korpelainen ,

Pääainetoimikunnan jäsen/Member of the Major Committee (Plant Production Science), Helena Korpelainen, 2004 → ...

Member in the IUCN specialist group for crop wild relatives, Helena Korpelainen, 2006 → 2012

Supervisory Board Member, Helena Korpelainen, 2007 → 2012

Membership in In Situ Conservation Task Force, Helena Korpelainen, 2008 → 2013

Maataloustieteiden laitoksen opetuksenkehittämissyöryhmä/ Task force for the Development of Education in the Department of Agricultural Sciences, Helena Korpelainen, 2009 → ...

Tuula Niskanen ,

Suomen Sieniseura, Tuula Niskanen, 04.2002 → 21.03.2005, Finland

Association Journées Européennes du Cortinaire, Tuula Niskanen, 2003 → 2010

Biotieteellisen tiedekunnan tiedekuntaneuvosto, Tuula Niskanen, 2004 → 2006, Finland

Kasvibiologian pääainetoimikunta, Tuula Niskanen, 2004 → 2006

Suomen Biologian Seura Vanamo, Tuula Niskanen, 2005 → 2006, Finland

Suomen Sieniseura, Tuula Niskanen, 22.03.2005 → 03.2008, Finland

Suomen sieniseuran alainen sientennimistötoimikunta, Tuula Niskanen, 2005 → 2010, Finland

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Bayerische Akademie der Wissenschaft, Kommission für Glaziologie, Petri Pellikka, 01.01.2005 → 31.12.2005, Germany



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Maantieteen kansalliskomitea, Petri Pellikka, 01.01.2006 → 31.12.2006, Finland
the International Society for Photogrammetry and Remote Sensing, Petri Pellikka, 01.01.2006 → 31.12.2006
COSPAR national committee, Petri Pellikka, 01.01.2007 → 31.12.2007
Commission for Glaciology of the Bavarian Academy of Science, Petri Pellikka, 01.01.2007 → 31.12.2007, Germany
Finnish Society of Photogrammetry and Remote Sensing, Petri Pellikka, 01.01.2007 → 31.12.2007
GI NORDEN, Petri Pellikka, 01.01.2007 → 31.12.2007, Norway
Geographical Society of Finland, Petri Pellikka, 01.01.2007 → 31.12.2007
International Society for Photogrammetry and Remote Sensing, Working Group VIII.8 Polar and Alpine Research, Petri Pellikka, 01.01.2007 → 31.12.2007
Commission for Glaciology of the Bavarian Academy of Science, Petri Pellikka, 01.01.2008 → 31.12.2008, Germany
Committee on space research (COSPAR) national committee, Petri Pellikka, 01.01.2008 → 31.12.2008, Finland
AISARES-tutkijakoulun johtokunta, Petri Pellikka, 2010 → ...
Chairman of TERRA, Petri Pellikka, 2010 → ..., Kenya
Devestun hallituksen jäsenyys, Petri Pellikka, 2010 → ...
Director of Taita Research Station in Kenya of the University of Helsinki, Petri Pellikka, 2010 → ...
Evaluator of a grant proposal, Petri Pellikka, 2010 → ...
Evaluator of a grant proposal, Petri Pellikka, 2010 → ...
Evaluator of a transnational access research proposal, Petri Pellikka, 2010 → ...
Inspektori Hämmäläis-Osakunnassa, Petri Pellikka, 2010 → ...
Jäsen Suomalaisessa Tiedeakatemiassa, Petri Pellikka, 2010 → ...
Jäsenyys Baijerin Tiedeakatemiassa, Petri Pellikka, 2010 → ...
Puheenjohtaja Hämmäläisten Ylioppilassäätiössä, Petri Pellikka, 2010 → ...
Tutkijakoulun johtokunnan jäsenyys, Petri Pellikka, 2010 → ...
varajäsenyys UniPID:ssä, Petri Pellikka, 2010 → ...

Jouko Rikkinen ,

Finnish Bryological Society (board member), Jouko Rikkinen, 1999 → ...
Aineenopettajakoulutuksen yhteistyöryhmä, Jouko Rikkinen, 2005 → ...
Opettajankoulutuksen kolmikantayhteistyöverkosto (committee member), Jouko Rikkinen, 2005 → 2009
Helsingin yliopiston opettajakoulutuksen neuvottelukunta (committee member), Jouko Rikkinen, 2007 → ...
Kestävää kehitystä edistävä korkeakoulujen yhteistyöfoorumi (committee member), Jouko Rikkinen, 2007 → ...
Suomen eläin- ja kasvitieteen julkaisutoimikunta (vice chair), Jouko Rikkinen, 2007 → ...
Suomen eläin- ja kasvitieteen julkaisutoimikunta ry:n tukiyhdistys (vice chair), Jouko Rikkinen, 2007 → ...
Palmenia Centre for Continuing Education (board member), Jouko Rikkinen, 2008 → 2010
Societas Biologica Fennica Vanamo (chair), Jouko Rikkinen, 2008 → ...
Viikin tiedekirjaston biotieteiden ja biotekniikan, ekologian, systematiikan ja ympäristöalan neuvottelukunta (chair), Jouko Rikkinen, 2008 → 2009
Development research and studies working group (University of Helsinki), Jouko Rikkinen, 2010 → ...
Finnish National Committee to International Union of Biological Sciences (committee member), Jouko Rikkinen, 2010 → ...



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INBIOS/Rikkinen

The Finnish Museum of Natural History (board member), Jouko Rikkinen, 2010 → ...

Leif Schulman ,

Deputy Member, Plant Variety Board of Finland, expert on garden plants, Leif Schulman, 01.01.2004 → 31.12.2007, Finland

Member of Kumpula Campus Committee, Leif Schulman, 2004 → 2009, Finland

Member of the European Botanic Gardens Consortium, Leif Schulman, 2005 → ..., Finland

Vice Chair, Consultative Committee of the Korkeasaari Zoo (City of Helsinki), Leif Schulman, 2005 → ..., Finland

Invited expert, working group for the development of the Korkeasaari Zoo, Leif Schulman, 01.01.2006 → 31.12.2007, Finland

Member of Commission, Professor Risto Tuomikoski Fund for Biological Taxonomy, Leif Schulman, 2006 → ..., Finland

Invited expert (ex situ conservation and conservation of genetic resources), development project of nature conservation, Leif Schulman, 2007 → 2008, Finland

Member of Steering Committee of the planning process of the general plan for the Kaisaniemi Park, City of Helsinki City Planning Department, Leif Schulman, 01.01.2007 → 31.12.2007, Finland

Invited Standing Expert in Steering Committee of the preparation of a national strategy and action plan on invasive alien species, Leif Schulman, 2008 → 2100, Finland

Member of working group on land plants for the preparation of a national strategy and action plan on invasive alien species, Leif Schulman, 2008 → 2009, Finland

Governing Board of GBIF, Head of Delegation (Finland), Leif Schulman, 03.2010 → ...

Member of Follow-up Group, National Digital Library, Leif Schulman, 03.2010 → 31.12.2011, Finland

Member of Steering Group, National workplan on species conservation, Leif Schulman, 2010 → 2011, Finland

Member, working group on the promotion of the realisation and follow-up of Finland's biodiversity strategy and action plan 2006-2016 (Ministry of the Environment), Leif Schulman, 03.2010 → ..., Finland

Viivi Virtanen ,

suomen sammalseura, Viivi Virtanen, 01.01.2006 → 31.12.2006, Finland

Maria Pohjamo ,

Saintpaulia Society of Finland, vice chairman, Maria Pohjamo, 2005 → 2007

Tea Huotari ,

Suomen kansallisen vieraslajistrategian suunnittelutoimikunnan sisävesistöt -alatyöryhmä, Tea Huotari, 2009 → 2010

Leo Junikka ,

Rahastonhoitaja ja hallituksen jäsen, Leo Junikka, 2000 → 28.02.2010

Suomen Biologian Seura Vanamo, Leo Junikka, 01.01.2005 → 31.12.2005, Finland

Suomen Biologian Seura Vanamo; Putkilokasvien nimistötoimikunta, Leo Junikka, 01.01.2005 → 31.12.2005, Finland

The Committee for Mapping the Flora of Europe, Leo Junikka, 20.10.2005 → 31.10.2005, Finland

The Committee for Mapping the Flora of Europe; Finnish consultative committee, Leo Junikka, 20.10.2005 → 31.10.2005, Finland

Suomen Biologian Seura Vanamo, Leo Junikka, 01.01.2007 → 31.12.2007, Finland

Suomen Biologian Seura Vanamo; Putkilokasvien nimistötoimikunta, Leo Junikka, 01.01.2007 → 31.12.2007, Finland

Suomen Biologian Seura Vanamo, Leo Junikka, 01.01.2008 → 31.12.2008, Finland

Suomen Biologian Seura Vanamo; Putkilokasvien nimistötoimikunta, Leo Junikka, 01.01.2008 → 31.12.2008, Finland

Kirsi Kostamo ,

Board member, Kirsi Kostamo, 2003 → 2009

Luis Orlando Morales Suarez ,

Member of the Society for Experimental Biology, Luis Orlando Morales Suarez, 20.03.2009, United Kingdom

SPPS Education Committee, Luis Orlando Morales Suarez, 04.09.2010

Maria Pietiläinen ,



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INBIOS/Rikkinen

Board member, Maria Pietiläinen, 2005 → 2009

Membership or other role in public Finnish or international organization

Jaanika Blomster ,

Deputy member of the Selection Board of the Faculty of Biological Sciences, Jaanika Blomster, 2007 → 2009, Finland

Deputy member of the Board of the Department of Environmental Sciences, Jaanika Blomster, 2010 → ..., Finland

Member of Aquatic Sciences Division Board, Faculty of Environmental Sciences, Jaanika Blomster, 2010 → ..., Finland

Member of Plant Biology Division Board (large composition), Faculty of Biological Sciences, Jaanika Blomster, 2010 → ..., Finland

Member of the teaching skills evaluation board, Faculty of Biological and Environmental Sciences, Jaanika Blomster, 2010 → ..., Finland

Member the Major board in Aquatic Sciences, Department of Environmental Sciences, Jaanika Blomster, 2010 → ..., Finland

Heikki Hänninen ,

IPCC:n 4.arviointiraportin työryhmä II:n raportin kommentointi., Heikki Hänninen, 14.07.2006 → 31.12.2006

Metsäntutkimuslaitos: tutkimusohjelman hakemusten arviointi. Tutkimusohjelma Metsäekosysteemien toiminta ja metsien käyttö muuttuvassa ilmastossa tutkimusohjelma vuodelle 2007-2011, Heikki Hänninen, 01.11.2006 → 31.12.2006, Finland

IPCC:n 4.arviointiraportin työryhmä II:n raportin kommentointi., Heikki Hänninen, 09.02.2007 → 31.12.2007

Metsäntutkimuslaitos: tutkimusohjelman hakemusten arviointi. Tutkimusohjelma Metsäekosysteemien toiminta ja metsien käyttö muuttuvassa ilmastossa arviointi., Heikki Hänninen, 12.10.2007 → 31.12.2007, Finland

Helena Korpelainen ,

Neuvottelukunnan jäsenyys/Board member, Helena Korpelainen, 2007 → 2011

Johtokunnan jäsen/Executive board member, Helena Korpelainen, 2010 → 2014

Petri Pellikka ,

European Commission, tutkimushakemusten arvioitsija, Petri Pellikka, 19.09.2005 → 23.09.2005, Belgium

Slovakian Research and Development Support Agency, tutkimushakemusten arvioitsija, Petri Pellikka, 01.12.2005 → 31.12.2005, Slovakia

Estonian Science Foundation, tutkimushakemusten arvioitsija, Petri Pellikka, 01.11.2006 → 30.11.2006, Estonia

Riitta Savolainen ,

Korkeasaaren neuvottelukunta (Helsingin kaupunki ja Helsingin yliopisto), Riitta Savolainen, 01.01.2008 → 31.12.2008, Finland

Leo Junikka ,

Putkilokasvien suomenkielisen nimistötoimikunnan jäsen, Leo Junikka, 1997 → ..., Finland

Tieteellinen asiantuntija, Leo Junikka, 23.09.2010 → ..., Finland

Membership or other role of body in private company/organisation

Johannes Enroth ,

Finnish Biological Society Vanamo, Johannes Enroth, 01.01.2002 → 31.12.2008

Petri Pellikka ,

ProGIS ry., Petri Pellikka, 01.01.2005 → 31.12.2005, Slovakia

ProGIS ry., Petri Pellikka, 01.01.2006 → 31.12.2006, Estonia

Timo Saarinen ,

Helsingin yliopisto tieteen tekijät, Timo Saarinen, 01.01.2003 → 31.12.2010, Finland

Other tasks of an expert in private sector

Leif Schulman ,

Solicited expert commentary by a private enterprise, Leif Schulman, 20.02.2005, Sweden



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Participation in interview for written media

Johannes Enroth ,

Carl von Linné naturvetare och läkare (symposio), Johannes Enroth, 23.11.2007 → 31.12.2011, Belgium

Heikki Hänninen ,

Haastattelu Metsälehteen (nro 21), Heikki Hänninen, 06.11.2003 → 31.12.2011, Sweden

Haastattelu Suomen Luonto-lehteen (marraskuu), Heikki Hänninen, 01.11.2003 → 31.12.2011, Sweden

Sanomalehti Etelä-Suomen Sanomat, Heikki Hänninen, 11.11.2005 → 31.12.2011, Finland

Sanomalehti Lapin Kansa, Heikki Hänninen, 27.04.2005 → 31.12.2011, Finland

Haastattelu Maaseudun Tulevaisuudessa, Heikki Hänninen, 11.09.2006 → 31.12.2011, Finland

Symbioosi ry:n järjestämä tilaisuus Ilmastorieha koululaisille, Heikki Hänninen, 08.09.2006 → 31.12.2011, Finland

Haastattelu / Keskisuomalainen, Heikki Hänninen, 20.07.2007 → 31.12.2011, Finland

Yleisönsastokirjoitus / Helsingin Sanomat, Heikki Hänninen, 22.06.2007 → 31.12.2011, Finland

Apu-lehti 4/2008, Heikki Hänninen, 01.01.2008 → 31.12.2011, Canada

Etelä-Suomen Sanomat, Heikki Hänninen, 14.05.2008 → 31.12.2011, Canada

Interview in Apu-magazine (in Finnish), Heikki Hänninen, 01.2008

Interview in newspaper Etelä-Suomen Sanomat (in Finnish), Heikki Hänninen, 14.05.2008

Interview in Aarre-magazine (in Finnish), Heikki Hänninen, 01.2009

Helena Korpelainen ,

Haastattelu: Tekes-projektien hallinnointi/Interview: Managing a TEKES project, Helena Korpelainen, 30.08.2005

Haastattelu: Kasvi-DNA:n hyödyntäminen rikostutkimuksessa/Interview: Utilization of plant DNA in criminal investigations, Helena Korpelainen, 16.08.2006

Haastattelu: Tutkimus sammalten käytöstä rikostutkimuksessa/Interview: Research on the utilization of bryophytes in criminal investigations, Helena Korpelainen, 15.11.2006

Haastattelu: Geenimuunneltujen hyttysten hyödyntäminen malarian torjunnassa/Interview: Utilization of genetically modified mosquitos in the prevention of malaria, Helena Korpelainen, 23.03.2007

Haastattelu: Geneettiset viivakoodit/Interview: Genetic barcodes, Helena Korpelainen, 04.11.2009

Tuula Niskanen ,

Kuin seitikkejä sateella, Tuula Niskanen, 09.2006, Finland

Outoja sieniä tutuissa metsissä, Tuula Niskanen, 15.09.2007, Finland

Sieniä on paljon luultua enemmän, Tuula Niskanen, 02.2008, Finland

Petri Pellikka ,

Helsingin Sanomat, Petri Pellikka, 14.01.2005 → 31.12.2011, Slovakia

Helsingin Sanomat, Petri Pellikka, 19.04.2005 → 31.12.2011, Slovakia

Mitä Missä Milloin 2006, Petri Pellikka, 01.10.2005 → 31.12.2011, Slovakia

Positio, Petri Pellikka, 19.04.2005 → 31.12.2011, Estonia

Suomen luonto, Petri Pellikka, 01.06.2005 → 31.12.2011, Slovakia

Suomen luonto, Petri Pellikka, 01.07.2005 → 31.12.2011, Slovakia

Tiede, Petri Pellikka, 01.01.2005 → 31.12.2011, Slovakia

Helsingin Sanomat, Petri Pellikka, 12.12.2006 → 31.12.2011, Estonia

Jouko Rikkinen ,

Interview (Henkilökuvaa), Jouko Rikkinen, 2006

Interview (Henkilökuvaa), Jouko Rikkinen, 2007



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INBIOS/Rikkinen

Interview (Kevät kukkii Pinkassa), Jouko Rikkinen, 2007

Interview (Kolmen kärki. Sarja esittelee kasvatukseen ja koulutukseen liittyviä valintoja), Jouko Rikkinen, 2007

Interview (Jäkälät), Jouko Rikkinen, 2009

Interview (Kasvi-irc ja kannettava luontoretki), Jouko Rikkinen, 2009

Interview (Verkko-opas vesiheinien viidakkoon), Jouko Rikkinen, 2009

Leif Schulman ,

luento Laurea ammattikorkeakoulun (Espoon-Vantaan AMK) Maailman hyötykasvit -kurssilla, Leif Schulman, 09.03.2001 → 31.12.2011, Finland

Lehtihaastattelu Hufvudstadsbladet-lehdessä, toimittaja Hedda Biström (Leif Schulmania haastateltu aikaisemmin), Leif Schulman, 27.07.2003 → 31.12.2011, Finland

Lehtihaastattelu kasvitieteellisen puutarhan joulukasvinäyttelystä, julkaistu Helsingin Sanomissa, Kaupunki-sivuilla, Leif Schulman, 16.12.2003 → 31.12.2011, Finland

Lehtihaastattelu, kantakaupungin paikallislehdet, toimittaja Enni Kömmistö (artikkeli ilmestyi Töölöläisessä 7.12.2003, Kamppi-Eira kaupunginosalehdessä 10.12.2003 ja Meri-Helsingissä 17.12.2003), Leif Schulman, 21.11.2003 → 31.12.2011, Finland

Pikku-uutinen Sosiaaliturva-lehti 13/2003 (Leif Schulmania haastateltu), Leif Schulman, 01.01.2003 → 31.12.2011, Finland

Cafe Scientifique; tiedekeskus Heureka ja British Councilin yhteistyönä Kaisaniemen kasvitieteellisessä puutarhassa järjestämä tilaisuus, Leif Schulman, 13.05.2004 → 31.12.2011, Finland

Etelä-Suomen Sanomat haastatteli Leif Schulmania, Leif Schulman, 26.10.2004 → 31.12.2011, Finland

Hufvudstadsbladetin toimittaja haastatteli 17.8. Leif Schulmania ja Marko Pesua puutarhan harjoittamasta siemenvaihdosta, Leif Schulman, 21.08.2004 → 31.12.2011, Finland

Leif Schulman oli antanut tietoja Torsti tietää -palstan vastaukseen, joka oli Helsingin Sanomissa, Leif Schulman, 15.02.2004 → 31.12.2011, Finland

Paul Segersvärd oli haastatellut 20.10. Leif Schulmania ja Johanna Kolehmaista; haastattelu lähetettiin Luonto lähellä -sarjassa, Leif Schulman, 01.11.2004 → 31.12.2011, Finland

Pirka-lehden Markku Saksan kirjoituksessa oli Leif Schulmanin lausunto, Leif Schulman, 01.01.2004 → 31.12.2011, Finland

Tiede-lehden Tutustu tutkijaan -artikkelisarjassa ilmestyi numerossa 2/2004 toimittaja Jarno Forssellin kirjoittama Leif Schulmanin esittely, Leif Schulman, 01.01.2004 → 31.12.2011, Finland

alustus ympäristöministeriön koole kutsuunassa neuvottelutilaisuudessa, jossa käsiteltiin kansallista kasviston suojeleua ja kestäväin käytön toimintaohjelmaa, Leif Schulman, 01.11.2004 → 31.12.2011, Finland

esitelmä Helsingin yliopiston luonnontieteellisen keskusmuseon Kivikunta?Kasvikunta?Eläinkunta? -yleisöluentosarjassa, Leif Schulman, 07.04.2004 → 31.12.2011, Finland

tiedekeskus Heureka ohjelmapäällikkö Paula Havaste haastatteli Leif Schulmania, Leif Schulman, 30.11.2004 → 31.12.2011, Finland

toimittaja Marja Pemberton oli 26.5. haastatellut Leif Schulmania Yliopistolehden puutarhateemanumeron 8/04, Leif Schulman, 18.06.2004 → 31.12.2011, Finland

toimittaja Paula Ritanen-Närhi haastatteli Leif Schulmania joulukuun 2005 Kotiliesi-lehteen tulevaan joulukasvivaikheeseen artikkeliin, Leif Schulman, 15.12.2004 → 31.12.2011, Finland

Dendrologian Seuran Arboretum-seminaari (kutsuttu esitelmä), Leif Schulman, 28.04.2005 → 31.12.2011, Finland

Espoon Rotary-klubi, viikkokokous (kutsuttu esitelmä), Leif Schulman, 18.04.2005 → 31.12.2011, Finland

FINFOOD-uutiset (/www.finfood.fi) ja Farmi-uutiset (www.farmi-uutiset.fi) (haastattelu), Leif Schulman, 02.02.2005 → 31.12.2011, Finland

Helsingin Sanomat -lehti (haastattelu), Leif Schulman, 09.02.2005 → 31.12.2011, Finland

Helsingin Sanomat -lehti, Nimiä tänään, nimitykset (haastattelu), Leif Schulman, 30.06.2005 → 31.12.2011, Finland

Helsingin Sanomat -lehti, Tiede & Luonto (haastattelu), Leif Schulman, 11.10.2005 → 31.12.2011, Finland

Helsingin yliopiston viestintäosaston järjestämä Vetenskapssnack-toimittajatapaaminen (kutsuttu alustus), Leif Schulman, 19.01.2005 → 31.12.2011, Finland

Hufvudstadsbladet-lehti (haastattelu), Leif Schulman, 21.06.2005 → 31.12.2011, Finland

Hufvudstadsbladet-lehti (haastattelu), Leif Schulman, 05.10.2005 → 31.12.2011, Finland



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Hufvudstadsbladet-lehti, Trädgård-liite (haastattelu), Leif Schulman, 06.04.2005 → 31.12.2011, Finland
ILMIÖ - Helsingin yliopiston verkkolehti (haastattelu), Leif Schulman, 01.01.2005 → 31.12.2011, Finland
Ilkka-lehti, Ajassa-liite (haastattelu), Leif Schulman, 08.03.2005 → 31.12.2011, Finland
Kaupunkilehti Varti (haastattelu), Leif Schulman, 24.11.2005 → 31.12.2011, Finland
Kotiliesi-lehti (haastattelu), Leif Schulman, 15.11.2005 → 31.12.2011, Finland
Kotipuutarha-lehti (haastattelu), Leif Schulman, 01.09.2005 → 31.12.2011, Finland
Maaseudun tulevaisuus -lehti (haastattelu), Leif Schulman, 02.02.2005 → 31.12.2011, Finland
Uutispäivä Demari -lehti (haastattelu), Leif Schulman, 03.02.2005 → 31.12.2011, Finland
Uutispäivä Demari -lehti (haastattelu), Leif Schulman, 19.04.2005 → 31.12.2011, Finland
Yliopisto-lehti (haastattelu), Leif Schulman, 01.03.2005 → 31.12.2011, Finland
Esitelmä, Blomsterodlingens vänner i Finland rf, Leif Schulman, 15.03.2006 → 31.12.2011, Finland
Haastattelu, Iltalehti, Leif Schulman, 17.11.2006 → 31.12.2011, Finland
Haastattelu, Birka-lehti, Leif Schulman, 01.01.2006 → 31.12.2011, Finland
Haastattelu, ET Kotipiha -lehti, Leif Schulman, 01.01.2006 → 31.12.2011, Finland
Haastattelu, Helsingin Sanomat, Leif Schulman, 01.04.2006 → 31.12.2011, Finland
Haastattelu, Helsingin Sanomat, Leif Schulman, 01.01.2006 → 31.12.2011, Finland
Haastattelu, Helsinki-info, Leif Schulman, 04.06.2006 → 31.12.2011, Finland
Haastattelu, Länsiväylä, Leif Schulman, 17.09.2006 → 31.12.2011, Finland
Haastattelu, Pirkka-lehti, Leif Schulman, 01.01.2006 → 31.12.2011, Finland
Haastattelu, Savon Seudun Snaomat, Leif Schulman, 12.08.2006 → 31.12.2011, Finland
Haastattelu, Åbo Underrättelser -lehti, Leif Schulman, 23.12.2006 → 31.12.2011, Finland
Interview, Helsingin Sanomat, Leif Schulman, 08.09.2006, Finland
Interview, HS, Leif Schulman, 26.10.2007, Finland
Interview, Hbl, Leif Schulman, 26.10.2007, Finland
Interview, Hbl, Leif Schulman, 28.10.2007, Finland
Interview, Helsingin Uutiset, Leif Schulman, 08.04.2007, Finland
Interview, Kansan Uutiset Viikkolehti, Leif Schulman, 16.05.2007, Finland
Interview, Maaseudun tulevaisuus, Leif Schulman, 06.03.2007, Finland
Interview, Orimattilan Sanomat, Leif Schulman, 05.01.2007, Finland
Interview, Parnasso - kirjallinen aikakauslehti 2/2007, Leif Schulman, 02.2007, Finland
Interview, Puutarha & kauppa 16/2007, Leif Schulman, 30.09.2007, Finland
Interview, Seura 14-15, Leif Schulman, 05.04.2007, Finland
Interview, Gotlands Allehanda, Leif Schulman, 12.09.2008, Finland
Interview, Helsingin Sanomat, Leif Schulman, 22.07.2008, Finland
Interview, Itä-Savo, Leif Schulman, 21.08.2008, Finland
Interview, Salon Seudun Sanomat, Leif Schulman, 02.04.2008, Finland
Interview, HBL, Leif Schulman, 08.06.2009
Interview, Helsinki Times 28 (107), Leif Schulman, 09.07.2009
Interview, Kaleva, Turun Sanomat, Keskisuomalainen, Leif Schulman, 04.10.2009
Interview, Pietarsaaren Sanomat, Leif Schulman, 09.09.2009
Interview, Puutarha & Kauppa, Leif Schulman, 12.06.2009



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Interview, Viherpiha, 4/2009, Leif Schulman, 2009
Interview, Viherympäristö 4/09, Leif Schulman, 2009
Interview, Yhteishyvä, 7.09, Leif Schulman, 2009
Interview, HBL, Leif Schulman, 27.05.2010
Interview, HS, Leif Schulman, 27.05.2010
Interview, Kaleva, Leif Schulman, 11.08.2010
Interview, Toivekoti & puutarha 4/2010., Leif Schulman, 2010
Interview, Viherpiha 4/2010., Leif Schulman, 2010
Interview, Vihreä lanka, Leif Schulman, 12.03.2010
Interview, Yliopistolainen 2/2010, Leif Schulman, 2010

Viivi Virtanen ,

Kivikunta? Kasvikunta? Eläinkunta? Luonnontieteellisen keskusmuseon yleisöluentosarja, Viivi Virtanen, 03.11.2004 → 31.12.2011, Finland
Zonta-yhdistyksen kokous, Viivi Virtanen, 02.09.2004 → 31.12.2011, Finland
esitelmä, Kasvitieteen Kevät Kaisaniemessä, Kasvimuseon Avoimet Ovet -yleisötilaisuus, Viivi Virtanen, 14.05.2004 → 31.12.2011, Finland
poster, Kasvitieteen Kevät Kaisaniemessä, Kasvimuseon Avoimet Ovet -yleisötilaisuus, Viivi Virtanen, 14.05.2004 → 31.12.2011, Finland
teema-kiertokäyntejä kasvitieteellisessä puutarhassa, Kasvitieteen Kevät Kaisaniemessä, Kasvimuseon Avoimet Ovet -yleisötapahtuma, Viivi Virtanen, 15.05.2004 → 31.12.2011, Finland
Suomen Luonto /lehti/, Viivi Virtanen, 01.01.2006 → 31.12.2011, Finland

Leo Junikka ,

Suomi-Brasilia -seuran vuosikokous, Helsinki, Leo Junikka, 01.04.2000 → 31.12.2011, Finland
Suomalais-Latinalaisamerikkalaisen yhdistyksen kokous, Helsinki, Leo Junikka, 15.11.2001 → 31.12.2011, Finland
Kon-Tiki Tours'in Brasilian Amazonin matkanjohto ja luonto-opastus, Leo Junikka, 03.11.2003 → 31.12.2011, Finland
Aurinkomatkojen Amazonin matkaoppaiden koulutus, Leo Junikka, 15.10.2004 → 31.12.2011, Finland
Kivikunta? Kasvikunta? Eläinkunta? Luonnontieteellisen keskusmuseon yleisöluentosarja, Leo Junikka, 03.03.2004 → 31.12.2011, Finland
Kon-Tiki Tours'in Brasilian Amazonin matkanjohto ja luonto-opastus, Leo Junikka, 02.11.2004 → 31.12.2011, Finland
esitelmä, Kasvimuseon kollokvio 99, Leo Junikka, 13.02.2004 → 31.12.2011, Finland
poster (Uotila, P., Kurtto, A., Lampinen, R., Lahti, T. & Junikka, L.), Kasvitieteen Kevät Kaisaniemessä, Kasvimuseon Avoimet Ovet -yleisötapahtuma, Leo Junikka, 14.05.2004 → 31.12.2011, Finland
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teema-kiertokäyntejä kasvitieteellisessä puutarhassa, Kasvitieteen Kevät Kaisaniemessä, Kasvimuseon Avoimet Ovet -yleisötapahtuma, Leo Junikka, 14.05.2004 → 31.12.2011, Finland
Kasvitieteellisten puutarhojen 20. neuvottelupäivät Helsinki, Leo Junikka, 22.08.2007 → 31.12.2011, Finland
Kon-Tiki Tours'in Brasilian Amazonin matkan johto- ja opastustehtävät, Leo Junikka, 28.12.2007 → 31.12.2011, Finland
Lehtihaastattelu/Helsingin Sanomat, Leo Junikka, 27.10.2007 → 31.12.2011, Finland
Lehtihaastattelu/Helsingin Sanomat, Leo Junikka, 02.07.2007 → 31.12.2011, Finland
Lehtihaastattelu/Sisustaja-lehti, Leo Junikka, 01.01.2007 → 31.12.2011, Finland
Televisiohaastattelu/Ylenaikainen, Leo Junikka, 03.01.2007 → 31.12.2011, Finland
Kotipuutarhalehden haastattelu, Leo Junikka, 27.03.2008 → 31.12.2011, Finland

Mari Miranto ,



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Lehtihaastattelu/Maaseudun tulevaisuus, Mari Miranto, 14.12.2007 → 31.12.2011, Italy

Sirpa Rasmus ,

Avotakka -lehti, Sirpa Rasmus, 01.01.2003 → 31.12.2011, United Kingdom

Iisalmen Sanomat, Sirpa Rasmus, 06.04.2003 → 31.12.2011, United Kingdom

Keski-Pohjalainen, Sirpa Rasmus, 01.01.2003 → 31.12.2011, United Kingdom

Metsähallituksen henkilöstölehti metsä.fi, Sirpa Rasmus, 01.01.2003 → 31.12.2011, United Kingdom

Tiedeohjelma Prisma, Sirpa Rasmus, 22.01.2003 → 31.12.2011, United Kingdom

Lehtihaastattelu Apu-lehdessä, Sirpa Rasmus, 25.01.2008

Sanomalehtihaastattelu, Sirpa Rasmus, 20.02.2009, Finland

Participation in radio programme

Johannes Enroth ,

Radio broadcast: Fossils and genes, Johannes Enroth, 21.11.2006, Belgium

Heikki Hänninen ,

Radio Suomi, tiedeuutiset, Heikki Hänninen, 11.06.2005, Finland

Helena Korpelainen ,

Haastattelu: Kasvi-DNA:n hyödyntäminen rikostutkimuksessa/Interview: Utilization of plant DNA in criminal investigations, Helena Korpelainen, 02.08.2005

Haastattelu: DNA-viivakoodit/Interview: DNA barcodes, Helena Korpelainen, 04.11.2010

Tuula Niskanen ,

Uusien lajien perässä, Tuula Niskanen, 22.12.2010, Finland

Jouko Rikkinen ,

Radio Keski-Suomi, YLE1, Jouko Rikkinen, 2005, Finland

Leif Schulman ,

YLE Radio Vega (haastattelu), Leif Schulman, 19.05.2005 → 31.12.2011, Finland

YLE Radio Vega - Mellannyländ (haastattelu), Leif Schulman, 03.11.2005 → 31.12.2011, Finland

YLE Radio Vega - Mellannyländ (haastattelu), Leif Schulman, 11.10.2005 → 31.12.2011, Finland

YLE Radio Vega - Mellannyländ (haastattelu), Leif Schulman, 15.07.2005 → 31.12.2011, Finland

YLE Radio X3M extreme, ohjelma "Pravda" (haastattelu), Leif Schulman, 02.02.2005 → 31.12.2011, Finland

Haastattelu, Radio Helsinki, Leif Schulman, 07.02.2006 → 31.12.2011, Finland

Haastattelu, Yle Radio Vega-Mellannyländ, Leif Schulman, 01.08.2006 → 31.12.2011, Finland

Interview, Yle Radio 1, Leif Schulman, 10.05.2006, Finland

Interview, Radio Suomi, Leif Schulman, 05.11.2007, Finland

Interview, YLE Aktuellt, Leif Schulman, 26.10.2007, Finland

Interview, YLE Radio 1, Leif Schulman, 24.07.2007, Finland

Interview, YLE Radio 1, Ylen aikainen, Leif Schulman, 26.10.2007, Finland

Interview, YLE Radio Vega, Leif Schulman, 05.11.2007, Finland

Interview, YLE Radio Vega - aktuell, Leif Schulman, 04.05.2008, Finland

Interview, YLE radiouutiset, Leif Schulman, 16.01.2008, Finland

Interview, Radio Vega Mellannyländ, Leif Schulman, 03.07.2009

Interview, YLEn aikainen, Leif Schulman, 02.06.2009

Interview, YLE Radio 1, Ykkösaamu, Leif Schulman, 06.04.2010



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Interview, YLE Radio Vega, Leif Schulman, 18.02.2010

Leo Junikka ,

Radiohaastattelu/Radio Suomi, Radioutusten kello 10 Ajantasa, Leo Junikka, 27.08.2007 → 31.12.2011, Finland

Robin Lundell ,

'Puolukat ja lumi'. Radio Suomi Tiede uutiset, Robin Lundell, 08.09.2005, Finland

Mari Miranto ,

Radiohaastattelu/Radio Folkhälsan, Mari Miranto, 31.10.2007 → 31.12.2011, Italy

Radiohaastattelu/Radio Helsinki, Mari Miranto, 02.07.2007 → 31.12.2011, Italy

Radiohaastattelu/Yle1, Mari Miranto, 14.12.2007 → 31.12.2011, Italy

Sirpa Rasmus ,

Radiohaastattelu, YLE Radio Keski-Suomi, Sirpa Rasmus, 10.02.2009, Finland

Participation in TV programme

Jaanika Blomster ,

Itämeren tila - elämää ulapalla ja rannoilla, Jaanika Blomster, 01.06.2007 → 31.12.2011, United States

Helena Korpelainen ,

Haastattelu: Luonto lähellä -sarja: Sammalten käyttö/Interview in the TV program 'Nature close to you': Utilization of bryophytes, Helena Korpelainen, 13.10.2005

Haastattelu: Kansalaisten suhtautuminen evoluutioteoriaan/Interview: Attitudes of people to the theory of evolution, Helena Korpelainen, 22.09.2006

Tuula Niskanen ,

Luonto lähellä -sarja (TV1), Tuula Niskanen, 12.09.2005, Finland

Suomen metsissä elää satoja löytämättömiä eliölajeja, Tuula Niskanen, 05.07.2007, Finland

Petri Pellikka ,

TV 2, Pallo hallussa, Petri Pellikka, 18.08.2005, Slovakia

Jouko Rikkinen ,

TV-ohjelma (Luonto Lähellä TV1), Jouko Rikkinen, 2006

Leif Schulman ,

Interview, Obs! TV 2, Leif Schulman, 02.09.2005, Finland

Interview, TV-nytt, Leif Schulman, 19.05.2005, Finland

Interview, TV-nytt, Leif Schulman, 20.07.2005, Finland

Interview, TV-ohjelma "Prisma-studio", Leif Schulman, 18.10.2006, Finland

Interview, Yle TV1, puoli yhdeksän uutiset, Leif Schulman, 02.01.2006, Finland

Interview, FST5 - Tieteen koukerot, Leif Schulman, 26.10.2007, Finland

Interview, TV-nytt, Leif Schulman, 28.03.2007, Finland

Interview, YLE TV 1, Aamu-TV, Leif Schulman, 26.09.2007, Finland

Interview, YLE TV1, Valtakunnallinen kello 18:n uutislähetys, Leif Schulman, 26.10.2007, Finland

Interview, YLE TV1, pääuutislähetys, Leif Schulman, 05.01.2007, Finland

Interview, YLE TV2, Uudenmaan uutiset, Leif Schulman, 26.10.2007, Finland

Interview, FST, Leif Schulman, 13.04.2008, Finland

Interview, YLE TV1, Aamu-TV, Leif Schulman, 20.05.2008, Finland

Interview, YLE TV2, Leif Schulman, 15.12.2008, Finland



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Interview, TV-nytt, Leif Schulman, 15.02.2010

Viivi Virtanen ,

TV-ohjelma, Luonto lähellä sarja, Suomi Aamu-tv 1 klo 8.14 (10 min), Viivi Virtanen, 01.01.2005 → 31.12.2011, Finland

Helena Åström ,

TV-ohjelma, Helena Åström, 30.03.2007 → 31.12.2011, Finland

Leo Junikka ,

YLEn Aamu-tv:n lähetys keskusmuseosta, Leo Junikka, 20.05.2008 → 31.12.2011, Finland

Kare Liimatainen ,

Luonto lähellä -sarja (TV1), Kare Liimatainen, 12.09.2005 → 31.12.2011, Finland

Robin Lundell ,

TV-nytt, Robin Lundell, 05.10.2005, Finland

Sirpa Rasmus ,

TV-haastattelu, YLE Teema, Tutkiva juttu, Sirpa Rasmus, 23.04.2009, Finland

Participation in interview for web based media

Tuula Niskanen ,

ONE Story Finland, Tiedon verkko, elämän verkko, ihmeiden verkko, Tuula Niskanen, 06.2010

Leif Schulman ,

Interview, WWW.ap24.fi, Leif Schulman, 23.06.2009

Interview, WWW.mtv3.fi, Leif Schulman, 26.05.2010



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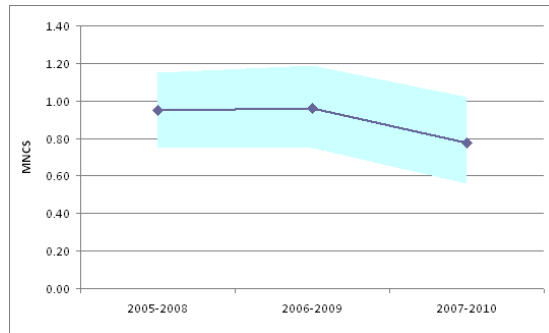
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Research Group: Rikkinen J

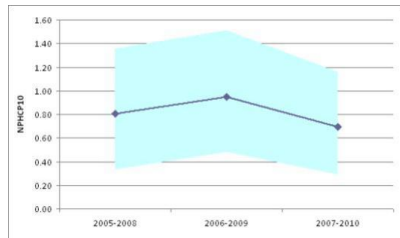
Basic statistics

Number of publications (P)	179
Number of citations (TCS)	596
Number of citations per publication (MCS)	3.35
Percentage of uncited publications	44%
Field-normalized number of citations per publication (MNCS)	.74
Field-normalized average journal impact (MNJS)	1.01
Field-normalized proportion highly cited publications (top 10%)	.67
Internal coverage	.68

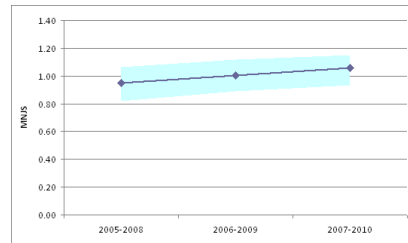
Trend analyses



MNCS

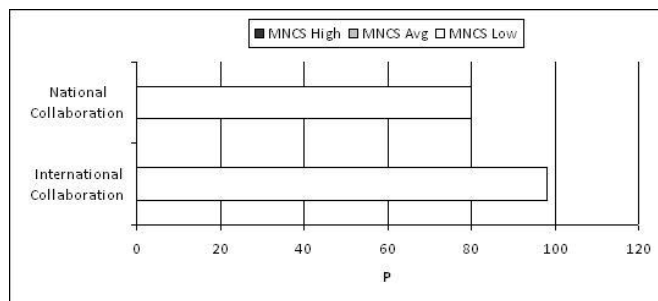


THCP10



MNJS

Collaboration



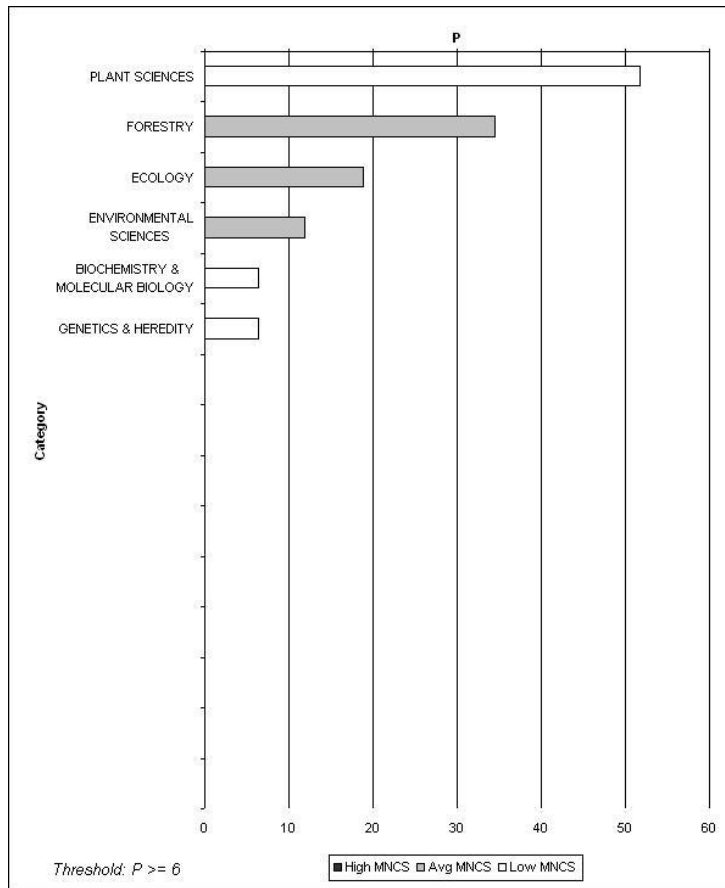
Performance (MNCS) by collaboration type



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Research profile



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