Tertiary Education Commission
Te Amorangi Mātauranga Matua

Performance-Based Research Fund

Biological Sciences panel-specific guidelines 2012 Quality Evaluation

Introduction

The Performance-Based Research Fund (PBRF) 2012 Panels have developed guidelines to assist staff members with the processes of developing and submitting Evidence Portfolios (EPs). These guidelines provide advice on specific areas that relate to the subject area of Biological Sciences and do not replace or supersede the requirements for EPs that are set out in the *PBRF Quality Evaluation Guidelines 2012*.

The Biological Sciences panel-specific guidelines must be read in conjunction with the *PBRF Quality Evaluation Guidelines 2012*. In areas where the panel-specific guidelines do not provide additional information, this is because the advice provided in the *PBRF Quality Evaluation Guidelines 2012* applies.

The panel will be primarily interested in assessing the quality of the NROs and the staff member's contribution to them, and can also take into account the quality of the outlets through which the research has been published.

Please note that peer review panels assess EPs without reference to Quality Categories gained by staff members from their participation in the 2003 and/or 2006 Quality Evaluations.

Biological Sciences panel-specific guidelines

Description of panel coverage

The Biological Sciences Panel will assess EPs in the subject areas described below. The descriptions should be considered a guide – they are not intended to be exhaustive.

Agriculture and other applied biological sciences
Includes food science, biotechnology, bioactives, agricultural science, crop production, farm management, animal husbandry, wool and fibre science, aquaculture, horticulture, viticulture, forestry studies, and fisheries science.

Ecology, evolution and behaviour

Ecology, evolution and behaviour includes animal, plant and microbial ecology, biogeography, marine science, land, parks and wildlife, biodiversity, biophysical sustainability, pest and weed control, phylogenetics, systematics, evolution, population biology and genetics, animal behaviour, physiological plant ecology, and biostatistics and modelling.

Molecular, cellular and whole organism biology

Molecular, cellular and whole organism biology includes animal and plant physiology, cell biology, animal and plant biochemistry, molecular biology, genetics, genomics, bioinformatics, microbiology, animal and plant pathology, pathology, immunology, pharmacology, neuroscience, developmental biology, and structural biology.

Cross-Referrals

It is expected that most **cross-referrals** to this panel will come from the following panels: Engineering, Technology and Architecture; Physical Sciences; Medicine and Public Health; and Health.

Note: Both Medicine and Public Health and the Biological Sciences Panel recognise the importance of the following disciplines: physiology, pathology, immunology, pharmacology, biochemistry, molecular biology, genetics, cell biology, microbiology, neuroscience, developmental biology, and bioinformatics. EPs with research outputs that are being used primarily in medical science, clinical practice, public health and health interventions will be assessed by the Medicine and Public Health Panel; other research outputs in these disciplines or subject areas will be directed to the Biological Sciences Panel. The panel Chairs will confer on those EPs where the primary orientation of the research outputs is unclear.

The membership of peer review panels is designed to enable panels to assess the quality of research in most areas, including those that have a professional or applied outcome. It is recognised, however, that a

	small number of staff members will have research outputs that require expert advice from outside the scope of the panel membership and/or that may need to be considered by one of the two Expert Advisory Groups.
Expectations for standard of evidence to be supplied	It is expected that most research outputs submitted to the Biological Sciences Panel would be quality assured. Quality assurance for this panel normally means that a research output has been peer-reviewed. Staff members completing EPs may wish to indicate in some way the relative ranking a journal may have in their field.
Elaboration of the definition of Research	The general Guidelines apply, see Chapter 1 Section D: What Counts as Research?
Types of research output	It is expected that most research outputs submitted to the Biological Sciences Panel will be formally peer-reviewed articles in respected scientific outlets describing original research. When a book is cited as one of the (up to) four Nominated Research Outputs (NROs), it will be important to identify the contribution to original research in the "Description" field. It is not expected that textbooks aimed at the undergraduate level will be submitted. Any textbooks submitted must have a research component. TEOs should note that all research outputs included in EPs must be consistent with the PBRF Definition of Research, as set out in the *PBRF Quality Evaluation Guidelines 2012*, and must be accompanied by evidence as to quality.
Additional advice from expert advisory groups	EPs can be referred to an Expert Advisory Group (EAG) by either a TEO or by the Chair of a peer review panel. Where an EP has been referred to an EAG and has **at least one** NRO that meets the criteria set out by that EAG, additional advice can be sought. A score and opinion on the EP will be provided back to the peer review panel the EP is assigned to. The criteria that will determine whether or not the Pacific Research and the Professional and Applied Research EAGs will accept EPs for consideration will be published on the TEC website.
Indications of the minimum quantity of research output expected to be produced during the assessment period	Four NROs would be expected as a minimum, but a smaller number would be acceptable with the appropriate special circumstances, for instance when the period of research is significantly shorter than the full assessment period.

Special circumstances	The general Guidelines apply, see Chapter 2 Section F: Dealing with Special Circumstances.
Definitions of Quality Categories	The general Guidelines apply, see the topic: What do the Quality Categories Mean? in Chapter 3 Section A: Panel Assessment: Introduction, and the final three topics of Chapter 3 Section D: Assessing and Scoring the Three Components of an EP – starting with Scoring an EP: Allocating Points for Research Outputs.
Treatment of non-standard, non-quality-assured and jointly produced research outputs	The general Guidelines apply, see the topics: Quality-Assured and Non-Quality-Assured Research Outputs and Outputs involving Joint Research in Chapter 2 Section C: Guidelines for Completing the Research Output Component. The Biological Sciences Panel emphasises the importance of jointly authored papers and recognises that joint research is likely to be the norm. Staff members should not consider that joint publication is a negative point. Where there are multiple authors, staff members must ensure that their contribution to the research output is clearly defined in the "My Contribution" section. In cases where co-authors include the same NRO in their EPs, staff members are encouraged to confer about the details of their contributions, to ensure that there is no conflict in the information provided. In papers with more authors than the 2048 characters allow, staff members may wish to indicate their position in the author list e.g. 5th in 36 authors.
Proportions of Nominated Research Outputs (NROs) to be examined[1]	It is intended that the Biological Sciences Panel will examine 100% of all NROs in the EPs submitted to it.
Use of specialist advisers	The general Guidelines apply, see the topic: Using a Specialist Adviser in Chapter 3 Section B: Allocating EPs to Panel Members and Obtaining Additional Input.
Elaboration of the descriptor and tie-points for the Research Output (RO) component	**The RO component descriptor** The general Guidelines apply, see topics: Scoring the RO component and Scoring an EP: Allocating points for research outputs in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP. *Tie-point 6* For journal articles an assessment of the scientific importance of the work will be the overriding criterion. The default preference is for primary research papers,

[1] "Examined" is defined as either reading an NRO in full, substantially or sufficiently to make an informed assessment, or (for NROs which by their nature cannot be read) an equivalent level of scrutiny.

but review articles that contain original analyses and/or synthesis and have made a demonstrable impact in the field may also be appropriate.

The standing of the journal within the sub-discipline area is an additional factor in demonstrating performance at this level. The Science Citation Index may be used as a criterion and will be made available to the panel assessors.

Tie-point 4

For journal articles, the standing of the journal in the sub-discipline area can be important in demonstrating performance at this level.

Tie-point 2

It would normally be expected that four quality-assured journal articles or equivalent NROs would be submitted. A PhD thesis completed within the assessment period may be included.

Elaboration of the descriptor and tie-points for the Peer Esteem (PE) component

The PE component descriptor

The general Guidelines apply, see topic: Scoring an EP: Allocating points for peer esteem in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP.

Tie-point 6

Ability to attract high-quality postgraduate students and postdoctoral fellows can be important in demonstrating performance at this level.

Tie-point 4

The general Guidelines apply, see topic: Scoring an EP: Allocating points for peer esteem in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP.

Tie-point 2

May include travel grants, invitations to give talks on research, and prizes (e.g. best paper at a conference).

Elaboration of the descriptor and tie-points for the Contribution to the Research Environment (CRE) component

The CRE component descriptor

The general Guidelines apply, see topic: Scoring an EP: Allocating points for contribution to the research environment in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP.

Tie-point 6 and 4

The general Guidelines apply, see topic: Scoring an EP: Allocating points for contribution to the research environment in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP.

Tie-point 2

May include organisation of local scientific meetings, seminars or journal clubs, involvement in organising scientific symposia and meetings.