

Evaluation report

Mid-term review 2006-2008

Institute for Biodiversity and Ecosystem Dynamics

Faculty of Science

University of Amsterdam

February 2010

IBED mid-term research evaluation

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IBED mid-term research evaluation

Preamble and procedure

The external Scientific Advisory Committee (SAC) of the Institute for Biodiversity and Ecosystem Dynamics (IBED) carried out its review of IBED as part of the Midterm review stipulated by the Standard Evaluation Procedure of academic Research Institutes in the Netherlands. The review was carried out on the basis of comprehensive documentation contained in the Self-Evaluation Report 2006-2008, the Annual Reports 2006, 2007 and 2008 and the report of the last full research assessment carried out in 2006. Rather than to meet in person, the SAC members submitted their individual assessments by e-mail. These were collated into a first draft by the Chair, subsequently commented on by SAC members and modified, and checked for factual inaccuracies by the Director of IBED, Prof. Peter van Tienderen. The final version was discussed with the Dean of the Faculty Prof.Dr. L.D. Noordam and the Director of IBED during a videoconference on 29 January 2010. Apart from giving a general, albeit very concise review, the SAC members also reacted to four specific questions asked by the Dean, Prof.Dr. L.D. Noordam. Here we wish to record our appreciation to Prof. Van Tienderen and his staff for providing us with excellent documentation.

2 February 2010,

Prof. dr. Pieter Baas (Chair)

Prof. dr. Godfrey Hewitt

Prof. dr. Joachim Hill

Prof. dr. Michel Loreau

*Scientific Advisory Council
of the Institute for Biodiversity and Ecosystem Dynamics*

IBED mid-term research evaluation

General Evaluation

The Committee was unanimously impressed by the quality of the Midterm Self-Evaluation and IBED's efforts to explain clearly how previous recommendations have been implemented (section 2), which new developments have meanwhile occurred and which are envisaged (section 3). The SAC strongly agreed with the overall SWOT analysis (section 5). The guiding principles and actions for the future (section 6) also find general support among the SAC members, although we urge IBED to base these even more rigidly on the self perceived Strengths, Weaknesses, Opportunities and Threats.

Some general concerns

1. The SAC shares the concern that the increasing efforts to attract external funding (to some extent forced by budgetary cuts at the faculty level) reduce the time actually spent on research and thus bear a risk of losing coherence in the mid- and long-term research strategies. This is a development in many countries and means that established researchers have to try various sources targeting the most likely for success. IBED is clearly adapting this strategy in a number of its new developments and proposed actions. The search for opportunistic funds should be seen as a means to maintain and improve scientific excellence, and IBED management should oversee this carefully.
2. When studying the publication record one can share the opinion expressed in the SWOT analysis that the published work is very good to excellent within the Research Themes but could be further strengthened with regard to collaboration between these themes and individual IBED staff.
3. The decline in the number of PhD students is a serious issue which is rightly mentioned in the SWOT analysis. PhD students are the new blood necessary to keep academic research institutions alive. The intention to attract PhD students with external and/or foreign funding is fine, but it is not obvious that this effort will be enough to remedy the problem.

Comments relating to the individual Research Themes

Theme 1, Biodiversity and Evolution

It is recognized that the departure of Prof. Veith (Animal Systematics and Zoogeography) to the University of Trier is an issue of major concern and leaves Theme 1 much weaker. However, given the intentions of tightly cooperating with NCB Naturalis in the future also provides a perspective for strategic re-orientation. The SAC believes that the ideas summarized on pp. 12 and 13 of the self-assessment report point into the right direction. It is also suggested that this case is pursued in linkage to other forthcoming vacancies – new priorities for strategic adjustments in all IBED Themes can be better implemented when resources are pooled. The planned development of a coherent plan for strategic appointment, as indicated in the SWOT analysis, is considered essential and may position IBED more firmly for negotiations on Faculty level.

Having said that, the SAC believes that IBED should invest in the still expanding field of biodiversity analysis, combining modern methods in genetics/genomics with other sources of ecological or geographical data, by attracting a new professor and preferably also younger, dynamic researchers in this vibrant area.

Theme 2, Geo-Ecology

Much of the work done under Theme 2 relates to the reconstruction of the Earth's climate in the past and landscape ecology. This is certainly well-justified but its relevance might be increased when, for example, the issue of climate in the future would become more visible. Particularly with regard to IBED's mandate of bridging the gap between science and practical applications, extending the research towards the design of sustainable adaptation strategies could become strategically important.

Although the period is too short to expect measurable outcomes, the appointment of Prof. Kalbitz since January 2009 as replacement of Prof. Verstraten is one important step in this direction. Kalbitz's interests will contribute to IBED's role in the main problem of our time - Man's pollution of the globe, caused by too large a population with industrial technology, and its effects on the biome. This implies that the field of macro-ecology will play a bigger role in future developments. In fact, the new denomination of Prof. Bouten's group (from Computational Biogeography into Computational Geo-Ecology) is perceived as an expression of re-directing Theme 2 towards studying larger patterns of biodiversity and ecosystem functions. It is expected that this will soon become visible in a broadening publication record (which so far is very much focused on a specific issue). Current developments in spatial data availability, geo-statistics and assimilation strategies generally open a wide field of

research for distributed modeling of ecosystem dynamics. Based on the existing computing facilities and the development of spatial data analysis concepts is an important option, certainly suited to attract additional students and to strengthen the integration of research activities across the IBED Themes.

Theme 3, Community Dynamics

This theme maintained its high level of excellence as noted by the last Peer Review, and has meanwhile been further strengthened by upgrading the part-time chairs in Aquatic Microbial Biology and Theoretical Ecology to full professorships. These groups – together with colleagues from other IBED groups – are in a strong position to become key players in IBED’s ambitions in systems biology. The SAC shares the concerns expressed about critical mass and supports the actions taken to strengthen Theoretical Ecology (section 2.3 of the self evaluation).

Response to specific questions by the Dean of the Faculty of Science

1. Which areas of the research programme does the Committee consider to be strong and which areas need to be developed?

The SAC finds that IBED has correctly identified the strengths of the various research areas in its Self-Evaluation report. The areas that need to be developed have been addressed above in our general remarks and special concerns about the three main IBED themes.

In summary the SAC recommends:

- The opportunity created by the move of Prof. Veith should be invested in strengthening the study of genetic diversity in space and time, preferably by a new hire at the professor level. This will help collaboration with NCB-Naturalis (see also #4).
- Special attention should be paid to strengthen the field of “macroecology”.
- Emphasis on projects that address the problems caused by human population and technological growth, and help control and redress these. IBED is in a favourable position to pursue this, and an emphasis should be good for funding in several areas and disciplines.

2. Which areas within IBED should be regarded as promising with respect to its partnership with the Netherlands Institute for Systems Biology

The SAC recognizes that the field of "systems biology" is a potentially powerful one for attracting funds and for forging fruitful collaborations. At the same time the SAC recommends that this fashionable ‘umbrella’ theme be critically approached, with due attention to sound new core concepts for systems approaches at all integration levels of life. Among the current strong research themes in IBED, the study of species interactions in microbial communities and the impact of individual variation in physiology and life history in food webs are already existing and could be further strengthened by a systems biology approach. Another theme, i.e., the interplay between species traits and ecosystem processes, would also be promising. These topics can be developed in a partnership with the NISB, but the SAC considers it essential that the groups remain firmly based within IBED.

3. In which way might the establishment of LifeWatch headquarters in Amsterdam have consequences for IBED research?

The SAC found it difficult to answer this question for lack of detailed information on the current direction and objectives of LifeWatch (in itself the current low visibility should be a matter of major concern to the LifeWatch community). However, the SAC does recognize that the increasing availability of complex biological data calls for a fundamentally new approach to biodiversity research, with many implications for both science and policy. Three conditions are essential for LifeWatch to succeed: (i) close co-operation with already established scientific networks also those outside of Europe, e.g. in North-America, given that LifeWatch is currently a primarily European endeavour, (ii) grass-root support from the scientific community, and (iii) a clear link to urgent socio-economic questions. If these conditions are fulfilled there are obvious benefits to be expected from LifeWatch, in funding as well as the scientific position of IBED.

4. How does the SAC see the relationship between IBED and NCB-Naturalis?

The SAC supports a strong collaboration between IBED and NCB-Naturalis as indicated in the self evaluation. Systematic experts in particular groups should provide valuable collaboration with genetic and ecological colleagues in IBED. The use of DNA data for living and dead organisms as envisaged in the NCB research programme has many applications, particularly for the origin and distribution of biodiversity, and how past and present environmental changes have affected this.

The IBED/NCB-Naturalis link is particularly relevant for the direction of IBED given the vacancy after Prof. Veith's departure. IBED should confirm that NCB-Naturalis compensates for that national loss of taxonomic expertise in its research strategy. Taxonomic expertise is being increasingly lost worldwide. Although many academic institutions may derive benefits from losing their taxonomic expertise because they can invest money into seemingly more dynamic research areas, in the long run this process may be viewed as yet another example of the "tragedy of the commons" because taxonomic expertise will ultimately be necessary for these new research areas. IBED can only afford to move away from systematic zoology if research collaboration with NCB provides the crucial taxonomic underpinning, especially in the development of a strong new research axis in macroecology.

Appendix: Composition of the Scientific Advisory Committee

Prof. dr. Pieter Baas (Chair)

Nationaal Herbarium Nederland
Leiden
The Netherlands

Prof. dr. Godfrey M. Hewitt

School of Biological Sciences
University of East Anglia
Norwich
United Kingdom

Prof. dr. Joachim Hill

Remote Sensing Department
Faculty of Geography/Geosciences
University of Trier
Trier
Germany

Prof. dr. Michel Loreau

Department of Biology
McGill University
Montreal
Canada