

International Joint Synthesis Centre meeting

held at the Centre for the Synthesis and Analysis of Biodiversity (CESAB), 9-11 October, 2013

Meeting Report



Back left to right: Prof Luguang Jiang (CERN), Prof. Dawn Field (EOS), Dr Bruno Fady (CESAB-FRB), Dr Allen Rodrigo (NESCent), Prof. Richard Price (Kiriganai Rearch Pty Ltd), Dr Lou Gross (NIMBioS).

Front left to right: A/Prof Alison Specht (ACEAS-TERN), Prof. Jill Baron (The John Wesley Powell Center), Dr Pamela Bishop (NIMBioS), Dr John Parker (Arizona State Uni), Prof. Andrew Campbell (Charles Darwin Uni, TERN), Dr Marten Winter (sDiV), Ms Magali Grana (CESAB), Dr Eric Garner (CESAB-FRB) and Dr Frank Davis (NCEAS).

Absent from photo: Dr Huixia Zhao (CERN), Dr Siddeswara Guru (ACEAS-TERN), Dr Elisabeth Paymal (FRB) and Dr Suzanne Long (TERN).

Synthesis Centres as a global phenomenon...

A new global community of practice has been established. The first meeting of biological science synthesis centres¹ from around the world was held in France from 9 to 11 October 2013 at the home of CESAB², the Centre for the Synthesis and Analysis of Biodiversity. The meeting, spearheaded by the trans-continental team of ACEAS (the Australian Centre for Ecological Analysis and Synthesis) and CESAB, brought together leaders of synthesis Centres from four continents: Europe (including the UK), Asia, North America and Australia. These innovative additions to the tools of science have grown from small beginnings in the mid-1990s as the community has recognised their value alongside the explosion of data intensive science.

Among the benefits of Centres has been the provision of supported space and time to enable scientists (and diverse individuals involved in natural system management) to gather and analyse existing data to solve big science questions. This has fostered new networks between diverse researchers and enhanced communities of practice. The Centre approaches differ according to discipline, objectives, and requirements related to their source of funding and location. The meeting allowed Centre Directors and coordinators to discuss their experiences, the nature of the support they

¹ List of participants and web sites of Centres in Appendix 1

² See Appendix 2 for list of acronyms

provide, the outcomes that are of most value to their communities and funding agencies, while exploring the activities that could be shared and the benefits of continuing the conversation.

An invitation was issued to meet again in Leipzig, Germany, in 2015 at sDiv – the Synthesis Centre for Biodiversity Sciences – sDiv (www.idiv.de/sDiv). In the meantime, several papers are planned, a collaborative presence on the internet will be established and the conversation will continue.

Agenda and outcomes of the meeting

Day 1 – sharing information, insights and defining common interests.

Each of the groups presented their opinion on the following:

- (i) their approach to the analysis and synthesis concept,
- (ii) why have they taken this approach,
- (iii) what they perceive were their strengths and weaknesses—and legacy,
- (iv) the role of their Centre in fostering new science and discoveries, and
- (v) what they wished to see from the meeting.

Independent investigators presented their overview of how they see the synthesis centre approach: the positives and the negatives, and the relevance of the synthesis centre in the community.

Day 2 – Defining and fleshing out achievable workshop outcomes

Discussion about some areas of interest previously identified:

(a) what are Centre differences and similarities. Definition of each by the features it shares with the others, and those that are, if not unique, shared by only a subset of the others. Concordance was reached that key similarities were an experimental approach and providing support for effective collaboration.

(b) evaluation. How we go about assessing (i) synthesis, (ii) our performance, and (iii) what are effective methods to use this evaluation both internally and externally. What can evaluation show about where synthesis centres fit in the research landscape?

(c) Measures of “success”

(d) Domain content—how does it reflect the community?

(e) existing interactions between centres—what is occurring, why and how.

Day 3 – Outcomes and collaborations

(a) Three possible articles have been discussed as outcomes of the meeting:

- (i) A position article, restating the value of scientific synthesis for the creation of new knowledge and of Synthesis Centres as science incubators. Synthesis Centres should become an integral part of the scientific process and need to be incorporated into each government’s research program. This is strengthened by the recognition that a global network of Synthesis Centres is a vital component of our sustainability on this planet. Target: *Nature or Science*.
- (ii) A short article showing the importance of Synthesis Centres for the advancement of science that is important for policy makers and society. Target: *The Economist*.
- (iii) A more detailed analysis, using more reflective and evidential data, stemming from the comparison of approaches between Centres and what this tells about the phenomenon. Target: *PLoSOne* or *TREE*.

(b) Several ideas with regard to funding have been discussed. Beyond specific national strategies (e.g. the different paths followed by NCEAS, NESCENT and NIMBioS), at least two levels of funding have been discussed:

- (i) At global level, an initiative involving all interested Centres: the possibility of launching a ‘Research Coordination Network’ (RCN, which are supported in the US by the NSF) is being explored by US participants.
- (ii) At European level through an answer to the e-infrastructure call of the European Union Horizon 2020 work programme. Discussions have started with sDiv (Germany) and EOS (UK). Whether other Synthesis Centres can be identified and whether Centres should answer on their own or as part of a broader Biodiversity Informatics infrastructure remains to be established.

(c) Possibilities for future collaboration: opportunities, mechanisms, and benefits /disadvantages were touched upon (e.g. joint calls, common workshops, sharing capacity).

Appendix 1: Participants in the meeting

Name	Centre or organization	Web site	Country
BISHOP, Pamela	NIMBioS	www.nimbios.org	USA
BOWEN, Jill	John Wesley Powell	www.powellcenter.usgs.gov	USA
CAMPBELL, Andrew	TERN/Independent	www.tern.org.au	Australia
DAVIS, Frank	NCEAS	www.nceas.ucsb.edu	USA
FADY, Bruno	CESAB	www.cesab.org	France
FIELD, Dawn	EOS	environmentalomics.org	United-Kingdom
GARNIER, Eric	CESAB	www.cesab.org	France
GROSS, Lou	NIMBioS	www.nimbios.org	USA
GURU, Siddeswara	ACEAS	www.aceas.org.au	Australia
JIANG, Luguang	CERN	www.cern.ac.cn:8080	China
LONG, Suzanne	TERN	www.tern.org.au	Australia
PARKER, John	ASU – Honours faculty fellow	http://barretthonors.asu.edu/2012/04/dr-john-parker-2/	USA
PAYMAL, Elisabeth	FRB (CESAB)	www.fondationbiodiversite.fr	France
PRICE, Richard	Independent researcher	http://www.kiri-ganai.com.au/	Australia
RODRIGO, Allen	NESCent	www.nescent.org	USA
SPECHT, Alison	ACEAS	www.aceas.org.au	Australia
WINTER, Marten	sDiv	www.idiv-biodiversity.de/sdiv	Germany
ZHAO, Huixia	CERN	www.cern.ac.cn:8080	China

Apologies were received from the Stockholm Resilience Centre, SeSYNC and the Tansley Working Groups.

Appendix 2: list of acronyms

ACEAS:	Australian Centre for Ecological Analysis and Synthesis
ASU:	Arizona State University
CERN:	Chinese Ecosystem Research Network
CESAB:	CEntre for the Synthesis and Analysis of Biodiversity
EOS:	NERC Environmental 'Omics Synthesis Centre
FRB:	Foundation for Research on Biodiversity
NCEAS:	National Center for Ecological Analysis and Synthesis
NESCent:	National Evolutionary Synthesis Center
NIMBioS:	National Institute for Mathematical and Biological Synthesis
Powell Center:	John Wesley Powell Center for Analysis and Synthesis
sDiv:	Synthesis Centre for Biodiversity Sciences
TERN:	Terrestrial Ecosystem Research Network