

# sDiv Newsletter

sDiv is the Synthesis Centre for Biodiversity Research of iDiv

Dear Colleagues,

Welcome to the fifth newsletter to share the latest developments. The sDiv management team, guests and resident scientists have been very active and busy during the last months.

The core of sDiv are the calls for working groups, postdocs and sabbaticals. As *result of the fifth call*, sDiv is funding six new working groups, two new individual postdocs and three sabbatical researchers. As part of the *International Synthesis Consortium*, sDiv is always open for collaborations. Thus, we are very happy that *sCAP* was awarded funding for additional meetings by our Canadian colleagues *CIEE / ICEE*.

Scientific peer reviewed publications are not the only outcomes sDiv projects produce. sDiv short term postdoc *Carsten Meyer* successfully applied for a Freigeist fellowship (1m EUR) and now started his *own group* at iDiv.

The epigenetic synthesis working group *SEPIDIV* successfully applied for further funding with proposals written during the sDiv group meetings – an *Oikos symposium* and an EU-funded project (worth 3.8m EUR). Personally, I am really looking forward to sDiv’s first German-focused synthesis project *sMON* in which we bring together delegates of all German federal states, NGOs as well as experts in data analysis to jointly discuss and develop workflows for analysing trends in German biodiversity data.

Enjoy reading our newsletter!

Yours,  
sMarten Winter

sDiv CALL for working groups, postdocs and sabbaticals is open!

**SUBMISSION DEADLINE  
14 February 2018**

Please find all important information and application documents here:  
[www.idiv.de/sdiv/calls](http://www.idiv.de/sdiv/calls)

## sDiv in a Nutshell



## The sDiv Advisory Board

sDiv is a major platform for linking national and international biodiversity research. The purpose of sDiv is to invite, host, and organize synthesis working groups, host sDiv postdocs and offer sabbatical fellowships. If you look at the summary figures on page two, you can clearly see, that running sDiv requires considerable effort and work force. The *sDiv management team* therefore currently comprises 6 persons, and was and is lead since the the beginning by *Marten Winter*. Their job ranges from strategic issues, by supporting the sDiv board, to the daily business of hiring, mentoring, supervising, administrating the postdocs and sabbaticals, organizing rooms, travel schedules, accommodation, reimbursement of travel costs of the participants and sDiv's resident scientists and of the sDiv budget in general. The sDiv board is in charge of formulating and launching the sDiv calls and for deciding on the corresponding proposals. The board includes renowned scientists which represent various elements of biodiversity research and various sectors involved with iDiv:

two directors, iDiv members, and external experts which help broaden the view and expertise of the board. While sDiv calls will be open in terms of *iDiv's four general elements of biodiversity research*, the board also encourages proposals on topics that so far were under-represented in sDiv, for example mechanistic modelling or microbial ecology. The review process is organized similar to peer review of scientific journals: four members of the board serve as handling editors, summarizing reviews, while adding their own perspective, into a recommendation for the board. For each proposal, the board strives to obtain one review of an iDiv member, and one external review. Marten Winter and his team manage everything around the review processes, such as contacting and assigning suitable reviewers. Finally, the board decides on the proposals to be accepted at its annual meeting. In addition to these annual meetings, a „small



*The sDiv Advisory Board*

sDiv board", comprised of Marten, three core professors, and the board's chair Volker Grimm, who is also one of the speakers of the iDiv members, meets monthly to make operative decisions regarding, e.g. supporting writing meetings of sDiv working groups or evaluations of sDiv postdocs. Based on those strategic discussions to increase integrative synthesis research within iDiv, sDiv supports three so called "Catalyst Postdocs". These are postdocs jointly supervised by a core iDiv Professor and an iDiv member, working together on synthesis research projects. The way the sDiv board worked, for example in reviewing the proposals or how to decide upon operative decisions, has changed over the years in responses to changes in workload and experience, but has stabilized now so that we are currently working on a new version of our by-laws. *Author: Volker Grimm*



*sAPROPOS* working group

## Upcoming Working Group Meetings

***sUrBioCity*** – Deciphering Drivers of Urban Biodiversity across Multiple Scales  
PI: Christopher Swan  
09. – 13.10.2017 | 09. – 13.04.2018

***sELDiG*** – Explaining the latitudinal diversity gradient: synthesizing knowledge via data-driven mechanistic modelling  
PIs: Allen Hurlbert; Catherine Graham  
16. – 20.10.2017 | 11. – 15.06.2018

***sTURN*** – Does time drive space? Building a mechanistic linkage between spatial and temporal turnover in metacommunities  
PIs: Zsófia Horváth; Robert Ptacnik  
06. – 10.11.2017 | 05. – 09.11.2018

***sMon*** – Synthesis and evaluation of monitoring data in Germany  
PIs: Florian Jansen; Aletta Bonn; Helge Bruelheide  
assoc. postdoc: David Eichenberg  
27.11. – 01.12.2017

***sLandServ*** – Linking Landscape Structure to Ecosystem Services  
PIs: Jonathan Rhodes; Jean Paul Metzger  
11. – 14.12.2017 | 02. – 06.07.2018

***sOcioLock-in*** – Understanding the undesirable resilience in socio-ecological systems driving biodiversity loss  
PIs: Tom Oliver; Emily Boyd  
05. – 09.02.2018 | 04. – 07.06.2018

***sEcoEvo*** – Biodiversity Dynamics – The Nexus Between Space & Time  
PIs: Rosemary Gillespie; Michael Hickerson  
19. – 23.03.2018 | 13. – 17.08.2018

## Great sDiv Papers

sDiv scientists and guests work very hard to move science forward. Here we present two sDiv working group efforts about or using meta-analyses, a common method in synthesis research.

**Will your paper be used in a meta-analysis?** – [Katharina Gerstner](#) and collaborators from [LU-BD-ES](#) and [Restoration Synthesis](#) working groups

We, participants of two synthesis working groups, jointly published a commentary in *Methods in Ecology and Evolution* about how to make primary research longer-lasting and gain broader impact. Quantitative synthesis of primary research studies (meta-analysis) are increasingly used in ecological and evolutionary research. Knowing how meta-analysis generally works is thus important for researchers and encourages scientists to see single primary research studies as substantial contributions to a larger picture. To facilitate inclusion in a meta-analysis, relevant primary research studies must be found and basic information about the methods and results must be thoroughly, clearly and transparently reported. While many published papers provide this information, it is common for essential data to be omitted, leading to study exclusion from meta-analyses. In this commentary, we promote meta-analytic thinking and provide guidelines for correctly reporting basic data needed from primary studies in ecology and evolutionary biology so that they can be included in meta-analyses, together with examples that show how data should be reported to enable calculation and analysis of effect sizes, and how data should be made accessible.



[LU-BD-ES](#) working group

➔ [Gerstner, K., Moreno-Mateos, D., Gurevitch, J., Beckmann, M., Kambach, S., Jones, H.P. & Seppelt, R. \(2017\) Will your paper be used in a meta-analysis? Make the reach of your research broader and longer lasting. \*Methods in Ecology and Evolution\*, 8, 777-784.](#)

**Synthesizing large gene expression datasets to reveal genome-wide host-pathogens interactions** – [Vincent Doublet](#) and [TRANS-BEE](#) working group

In a world of pathogen diversity, hosts are thought to face off infection by mounting a specific response to each type of pathogen they encounter. The advent of transcriptomics (a branch of 'next generation sequencing' or NGS) now makes it possible to test this hypothesis and compare host responses – in terms of gene expression – to multiple pathogens at a genome-wide scale. The working group TRANS-BEE, coordinated by Vincent Doublet, brought together an interdisciplinary group of molecular biologists, ecologists and bioinformaticians to perform a meta-analysis of transcriptomes of honey bees that had been experimentally infected by one or more pathogens. To undertake the synthesis of multiple datasets collected using different NGS platforms, iDiv postdoc Yvonne Poeschl developed a new bioinformatics approach that filters genes based on their expression profile across datasets. The TRANS-BEE team then explored with unprecedented depth the mechanisms that underpin host-pathogen interactions and generated a comprehensive overview of the host metabolic and biological processes involved in the response of honey bees to diseases. This meta-analysis enabled the identification of a common 'key' set of host genes and pathways that always respond to phylogenetically diverse pathogens, as well as pathogen-specific responses to gut pathogens and viruses. Lists of genes that are commonly up- or down-regulated in response to a range of pathogens, as well as those that respond to just a single pathogen, represent an important source for future functional studies and offer new routes to identify or generate pathogen resilient honey bee stocks. Importantly, the statistical and bioinformatics approaches that were developed in TransBee are broadly applicable to synthesize information across diverse gene expression datasets and are likely to be taken up by the burgeoning field of transcriptomics.



[TRANS-BEE](#) working group

➔ [Vincent Doublet, Yvonne Poeschl, et al. \(2017\). Unity in defence: honeybee workers exhibit conserved molecular responses to diverse pathogens. \*BMC Genomics\* 18:207.](#)



## Some recent Publications

- *Operationalizing Network Theory for Ecosystem Service Assessments.* (working group: sERVICES)
  - *Integrating ecosystem services and disservices: insights from plant invasions.* (working group: Acacia invasions)
  - *Unifying concepts of biological function from molecules to ecosystems.* (working group: sFIND)
  - *Where less may be more: how the rare biosphere pulls ecosystems strings.* (working group: sRareBioS)
  - *A framework for mapping and comparing behavioural theories in models of social-ecological systems.* (working group: Human decision making)
  - *The Evolutionary Legacy of Diversification Predicts Ecosystem Function.* (working group: sCoMuCra)
  - *Planning for the Future of Urban Biodiversity: A Global Review of City-Scale Initiatives.* (working group: Urban ESS)
  - *Anthropogenic ecosystem disturbance and the recovery debt.* (working group: Restoration synthesis)
  - *A global review of past land use, climate, and active vs. passive restoration effects on forest recovery.* (working group: Restoration synthesis)
- ➔ [see all iDiv publications here](#)

## New sDiv Scientists

### New postdoc projects

Léa Beaumelle – How do multiple environmental change drivers shape biodiversity-ecosystem functioning relationships?

Roel van Klink – Effects of extreme weather events on long term ecosystem dynamics (X-WELT)

David Eichenberg – sMON postdoc - Synthesis and evaluation of monitoring data in Germany

### New catalyst postdoc projects

Adam Clark – sMultiMod: Synthesis of multiple predictive models of community composition and coexistence

Callum Lawson – Double jeopardy: which populations will become both smaller and less stable under climate change?

Guy Pe'er – Towards the next reform of the EU's Common Agricultural Policy: evaluating the new greening measures from Ecological and Socio-economic perspectives

### New sabbatical projects

Benjamin Gilbert – Neutrality, Demographic stochasticity and ecological drift; Local interactions, Regional constraints, and multiple stable states

Robert Dunn – The Global Biogeography of Microbes and Mutualists Associated with Humans



Current sDiv people

Since your feedback is always welcome, please do not hesitate to contact sMarten Winter, the scientific coordinator, or the sDiv administrative assistant Franziska Hübner.

With our best regards from Leipzig

sMarten Winter & team




## Publisher

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Photos: iDiv and partners