sPlot 2.0: the global vegetation-plot database for addressing fundamental ecological questions

Jürgen Dengler, Helge Bruelheide, Oliver Purschke, **Stephan Hennekens,
Milan Chytrý, Ute Jandt,** Florian Jansen, **Borja Jiménez-Alfaro,** Jens Kattge,
Jonathan Lenoir, Valério De Patta Pillar, Brody Sandel, Marten Winter **& the
sPlot Consortium**

sPlot

- **sDiv Working Group on "Global Plant Trait-Environment Relationships"**

- Hosted by the **Synthesis Centre (sDiv)** of the German Centre of Integrative Biodiversity Research Halle-Jena-Leipzig (iDiv)

- The **sPlot database** is a common, community-governed vegetation-plot database for data from all continents

- Partnership with the **European Vegetation Archive (EVA)**

- It combines these with **mean species trait values from the TRY database** and tools to match data from different sources taxonomically

Timeline

6-9 March '13   **1st sPlot Workshop** in Leipzig (with 42 participants)

since June '13   J. Dengler employed as coordinator (25% position)

June '13   Cooperation agreement with EVA

July '13   ***Governance and Data Property Rules*** approved

July '13   Invitiation of contributing databases started

Dec. '13   Decision to implement sPlot under TURBOVEG 3; collaboration with Stephan Hennekens

April '14   First extra-European databases combined with most of the EVA databases (= official **start of the sPlot database**)

August '14   First **match of sPlot with TRY** to check overlap of species

30 Nov '14   **sPlot 1.0 released** (53 databases, 840,000 plots)

2-5 Dec '14   **2nd sPlot Workshop** in Leipzig (to analyse data and plan papers)

The sPlot Rules

3.   The members of the sPlot Consortium elect the sPlot Steering Committee

4.a. Data can be contributed to sPlot only upon invitation by the Steering Committee. The owner of this database becomes a member of the sPlot Consortium.

4.e. All data contributed to the sPlot database remain intellectual property of data contributors and may be withdrawn at any time.

5.a. The sPlot database can only be used by sPlot Consortium members for specific research projects focusing on global- or at least continental-scale analyses.

5.c. Each member of the sPlot Consortium has the right to propose analytical or other papers using sPlot data.

6.a The sPlot Steering Committee will send the approved paper proposal to all members of the sPlot Consortium and inform them which amount of data of which contributors is supposed to be used in the respective analyses. The members of the sPlot Consortium can then declare their willingness to join the paper project as active co-authors during a period of one month (opt-in papers).
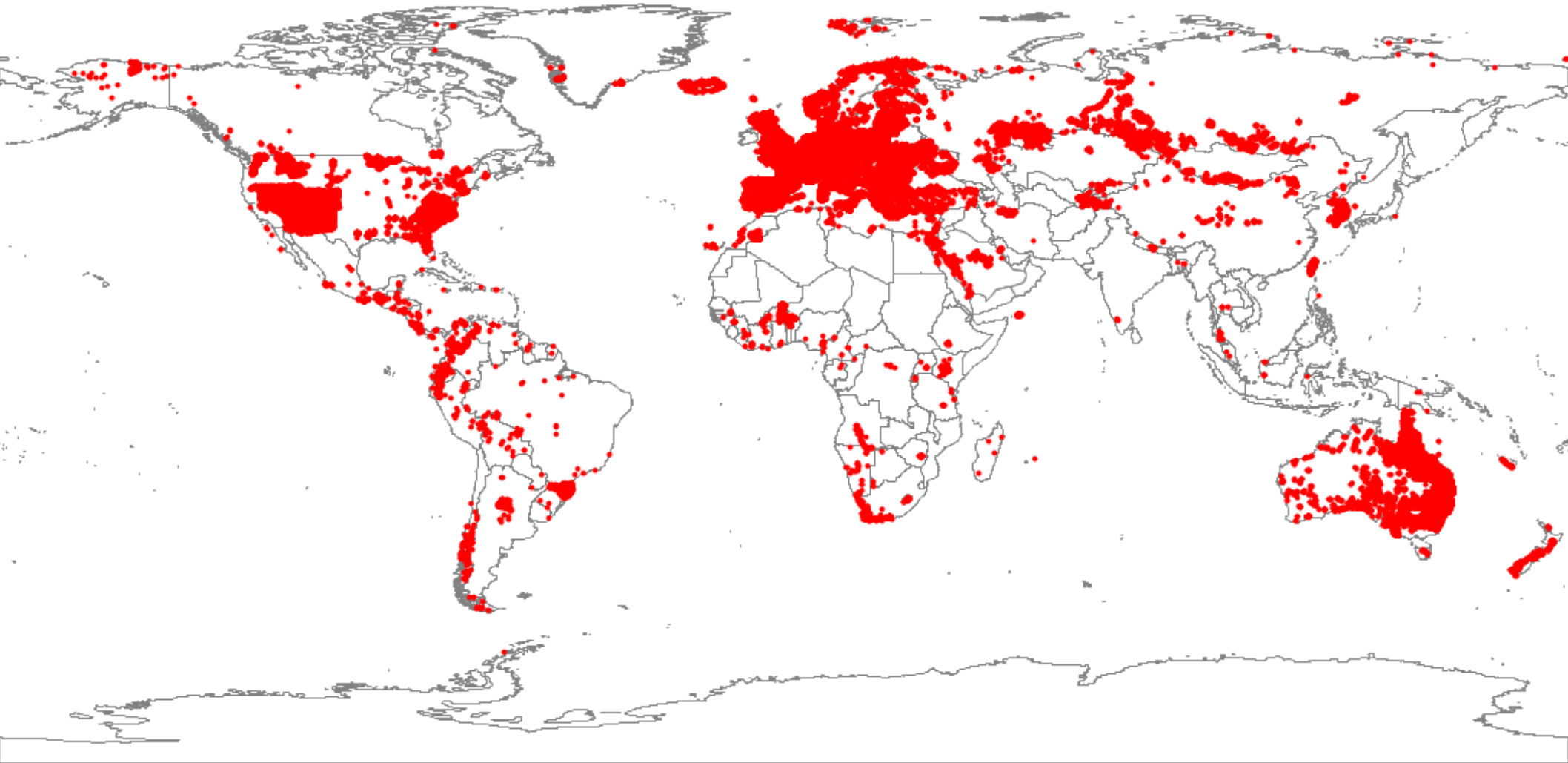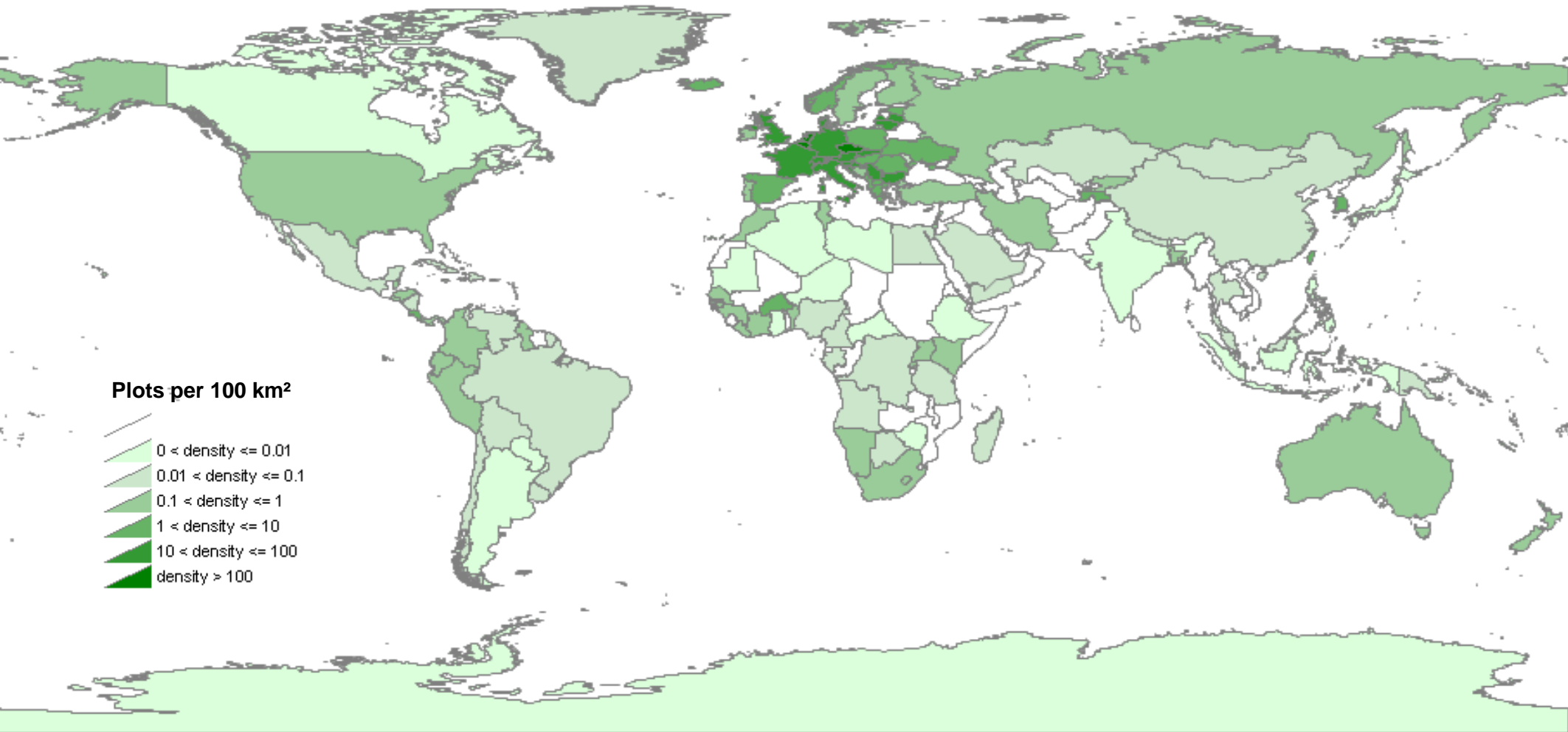
Concept of data integration in sPlot
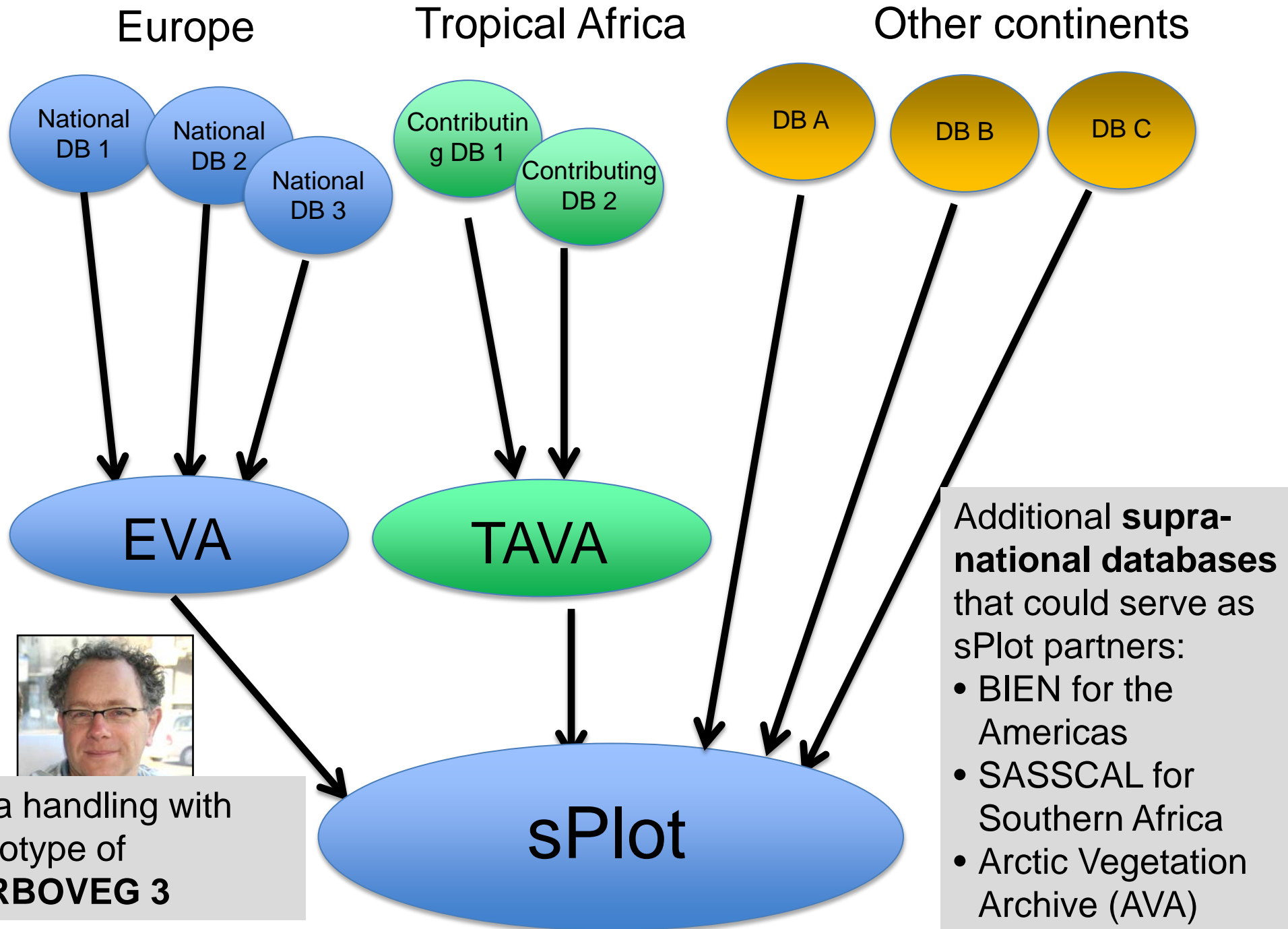
Content of sPlot 2.0 (May 2015)

- **110 databases, 130 countries, 1,117,762 relevés**
- **All seven continents**
- **Europe (including Turkey):** 54 DBs, 941,425 relevés
- **Americas:** 20 DBs, 101,203 relevés
- **Africa, Asia, Australasia, Antarctica:** 42 DBs, 73,030 relevés
- **Increase compared to sPlot 1.0:**
  57 DBs, 60 countries, c. 250,000 plots
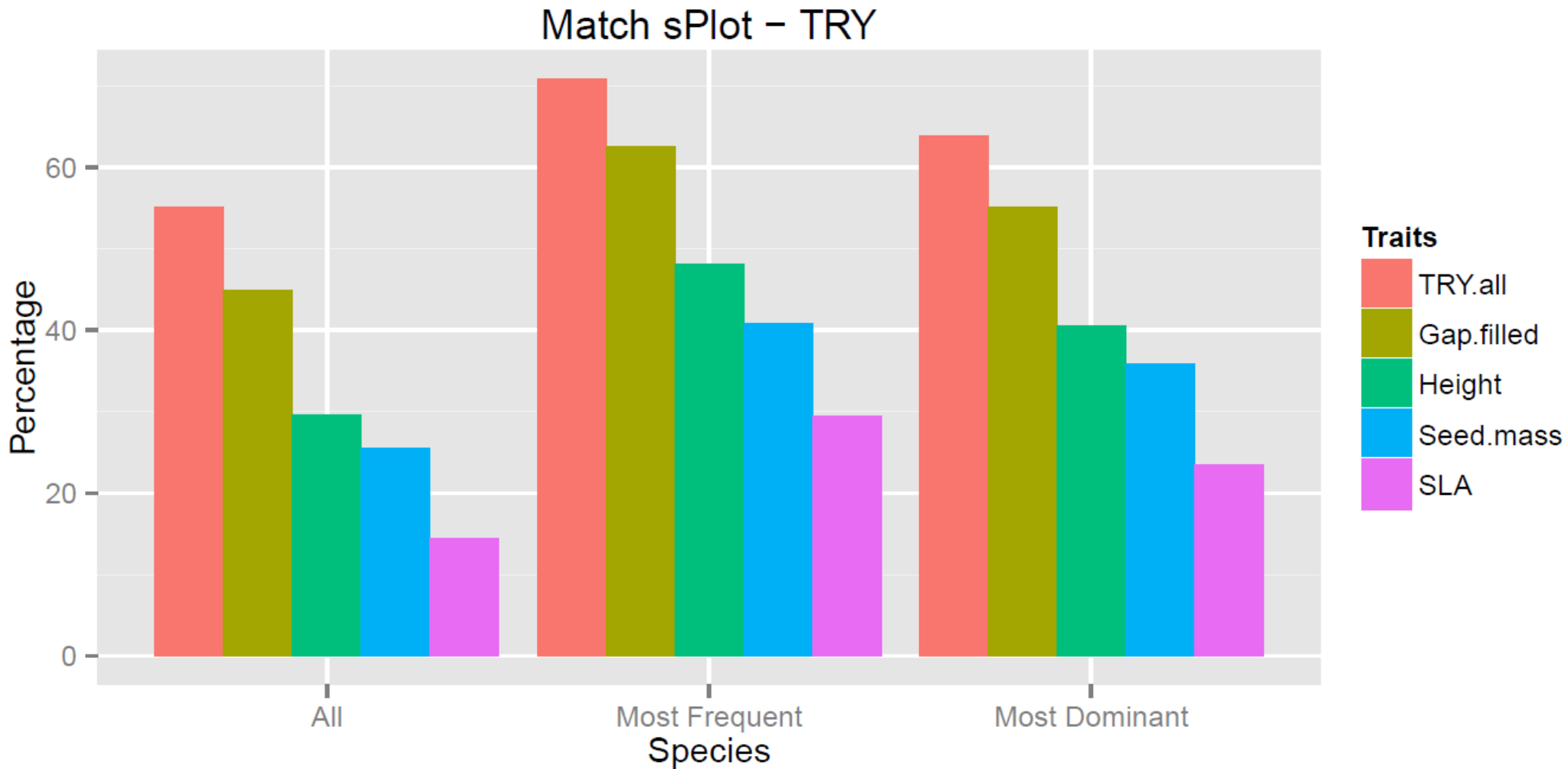
Content of sPlot 2.0 (May 2015)
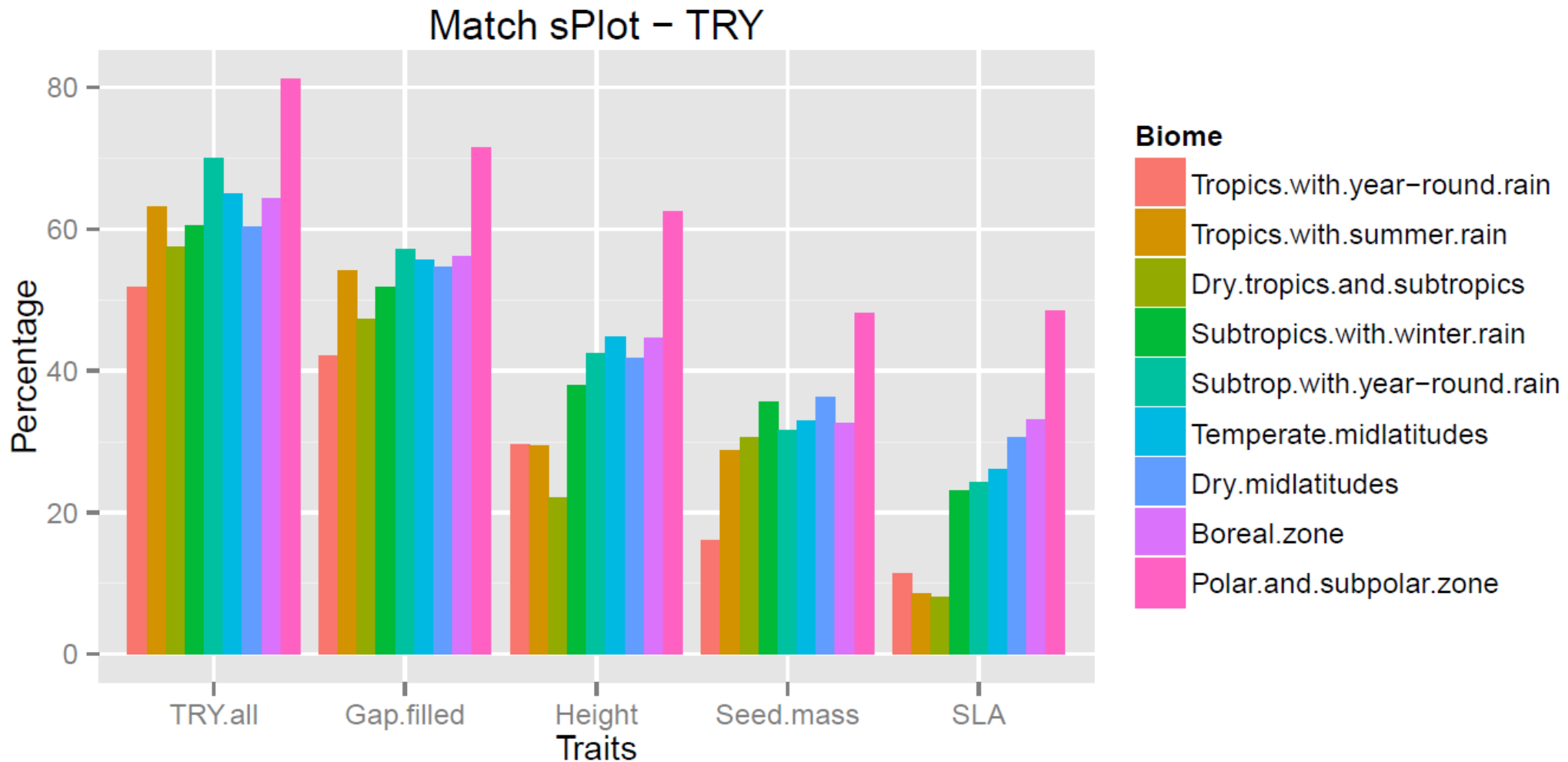
Content of sPlot 2.0 (May 2015)

Plots per 100 km²

0 < density <= 0.01
0.01 < density <= 0.1
0.1 < density <= 1
1 < density <= 10
10 < density <= 100
density > 100

Matching of sPlot with TRY: all (sPlot 1.0)

Kattge, J. et al. 2011. TRY – a global database of plant traits. *Global Change Biol.* 17: 2905-2935.

Matching of sPlot with TRY: biome-wise
(sPlot 1.0)

Schultz, J. 2002. *The ecozones of the world. The ecological division of the geosphere*. 2nd ed.
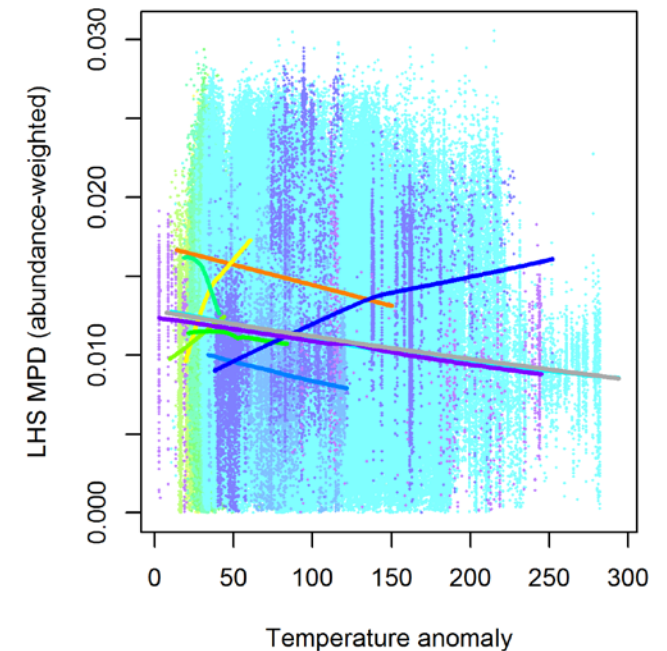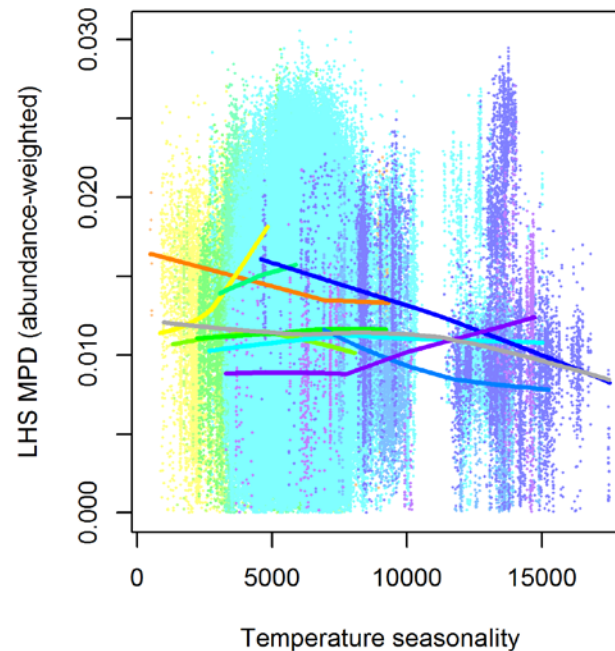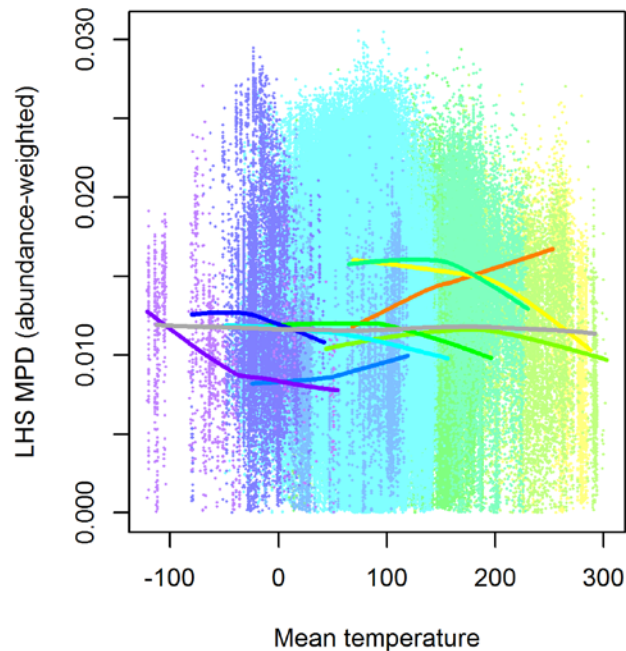
Exemplary analyses (with sPlot 1.0)

Community-weighted specific leaf area (SLA)
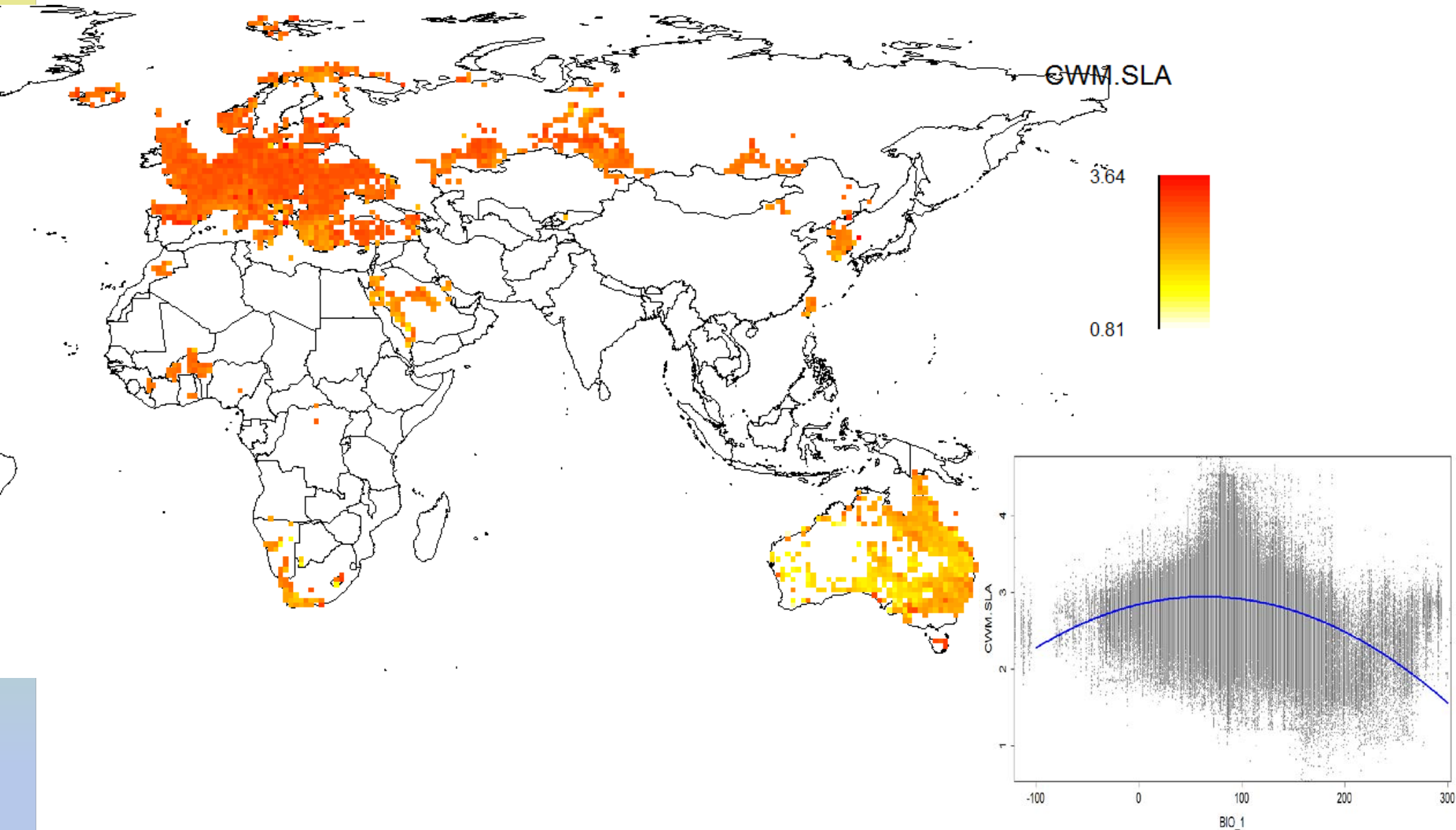
Exemplary analyses (with sPlot 1.0)

Functional diversity explained by temporal variability of climate

Next steps

- **Currently: Finetuning sPlot 2.0 for release**
  - completion of essential header data fields (coordinates, precision, naturalness, formation, plot size & plants recorded)
  - "cleaning" of species names
  - Matching of taxon names with TRY database

- **"Database paper"** with all custodians of databases as co-authors

- **Analytical papers based on sPlot 2.0 (planned for 2015), e.g.**
  - trait-environment relationships across biomes
  - alpha- and beta diversity (species diversity, FD, PD)
  - global invasion patterns
  - […]

- **Later: Preparing sPlot 3.0 (for spring 2016)**
  - new data/better header data for current databases
  - new databases
  - ‣ European databases only via EVA
  - ‣ extra-European contact Jürgen Dengler

We thank those thousands of vegetation scientists who recorded relevés or measured plant traits and made these data available in common databases!

▶ **More information:**

sPlot Core Team members available in Rennes:
Jürgen Dengler, Milan Chytrý, Stephan Hennekens, Ute Jandt & Borja Jimenez-Alfaro
Homepage:
http://www.idiv-biodiversity.de/sdiv/workshops/workshops-2013/splot