



a project of  iDiv

– sPlot Letter No. 6 –

28th November 2016

**Dear members of the sPlot Consortium,
Dear custodians and deputy custodians of sPlot member databases,
Dear (co)authors of sPlot manuscripts,**

Just after a very successful third sPlot Workshop at iDiv in Leipzig, we want to report on the current status of the sPlot database and the sPlot Working Group and announce forthcoming activities.

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sPlot 2.1 finalized!

While in the sPlot Letter No. 5 we had assumed that the version sPlot 2.0 would be the fixed version on which the sPlot papers of the first series would be based, during a pre-meeting to the sPlot III Workshop we realized that sPlot 2.0 still contained some inconsistencies that we had overlooked before, leading to the preparation of sPlot 2.1.

The new version sPlot 2.1 has now **1,121,244 plots** (Fig. 1).

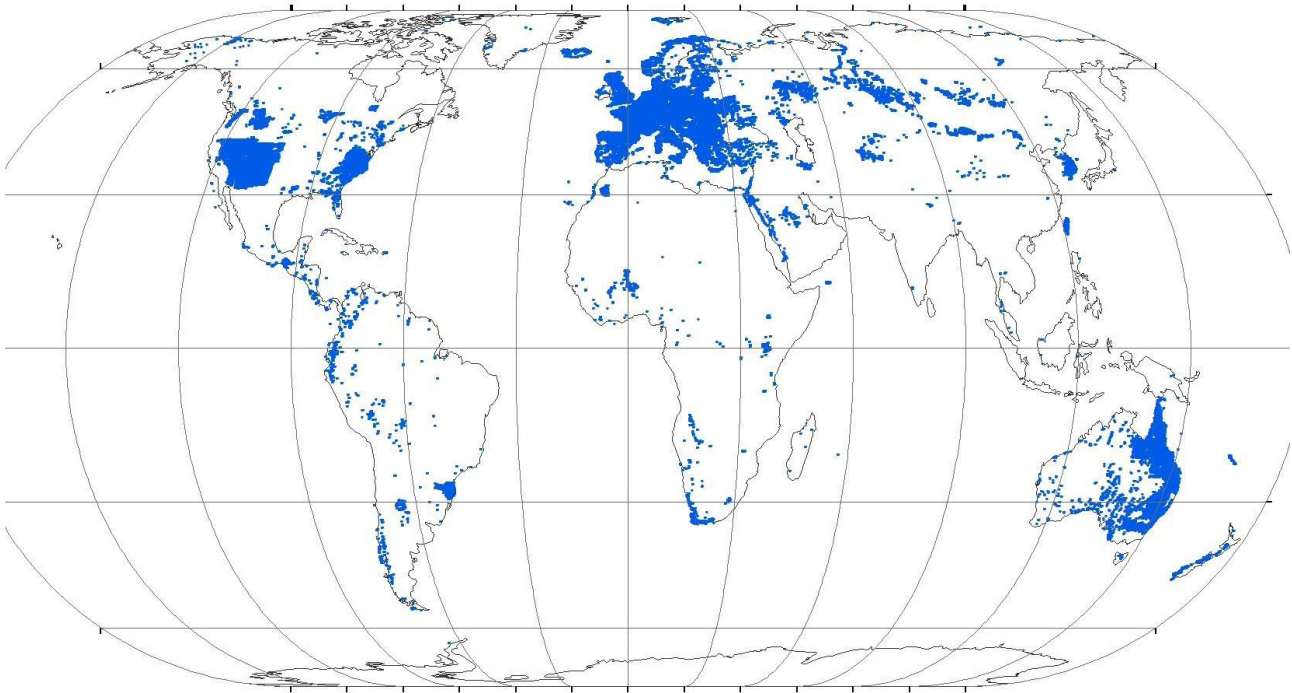


Fig. 1: Distribution of the vegetation plots in sPlot 2.1.

sPlot III Workshop

The 3rd sPlot workshop has been applied for in the sDiv programme by the PIs Jürgen Dengler and Oliver Porschke, who also prepared the invitations and the workshop programme. The workshop took place at the iDiv headquarters in Leipzig from 24–28 October 2016. In the week prior to the workshop, a smaller group of people met in Leipzig to ensure optimal preparation of the main workshop, in particular the datasets. In this pre-meeting Oliver Porschke managed to match the species names of the current sPlot 2.1 version and all species in TRY 3.0 to a common taxonomic backbone, now holding more than 130,000 species names. After standardization, we retained 52,032 accepted taxon names in sPlot 2.1. Of those, 26,632 species have traits with gap-filled data from TRY 3.0, which however, make up 89.25% of all data entries (21,050,474 species-in-plot data lines with both traits and geographical coordinates of a total of 23,586,216 records in sPlot 2.1, also excluding all non-vascular plant species). Helge Bruehlheide calculated all community weighted means (CWM), variances (CMV) and various measures of functional diversity (FD) for all 1,098,866 plots with at least two species with traits (98.00% of all 1,121,244 plots). Borja Jiménez-Alfaro put then all this information onto global maps. Fig. 2 shows an example for the global distribution of specific leaf area (SLA). Global coverage has considerably improved with respect to the previous version, however, still with clear gaps especially in the tropics. These data were then made available for analyzing trait-environment relationships during the workshop.

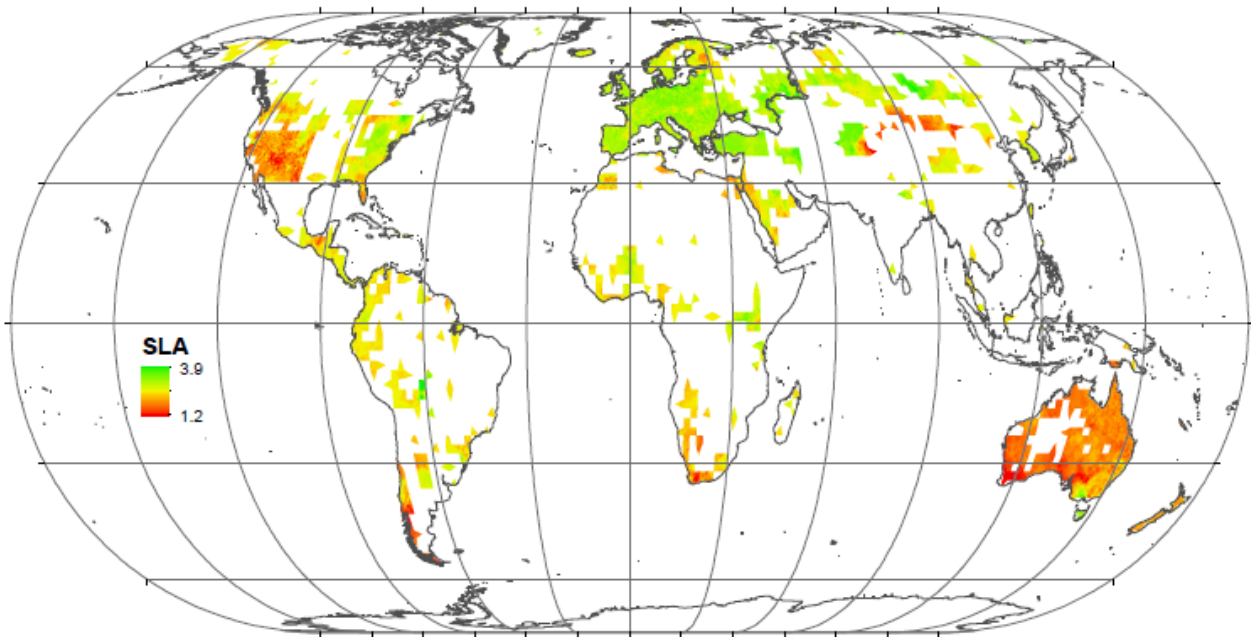


Fig. 2: Community weighted mean values of specific leaf area in sPlot 2.1. Based on 1,098,866 plots (98% of all plots). SLA is \log_e transformed.

The main workshop was attended by 19 colleagues from three continents (Fig. 3). After presenting, on Monday, the current sPlot content, the available data files and the six paper projects for the workshop (see below), the participants used Tuesday to Thursday to work in outbreak groups (parallel and subsequent) on the six papers: defining hypotheses and analytical approaches, outlining the structure of the papers, carrying out analyses, preparing first figures and finally starting with writing-up the text. In between, we also solved some remaining issues of the header data, including a more consistent and more comprehensive assignment of plots to biomes and formations. Friday was devoted to wrapping up the achievements of the workshop, defining timelines for the six first papers, presenting ideas for additional papers (see below) and planning the future of the sPlot Working Group and the sPlot database (see below). In conclusion: it was a very intensive week full of inspiring and fruitful cooperation!



Fig. 3: Participants of the sPlot III Workshop. From left to right: back row: Borja Jiménez-Alfaro, Jens Kattge, Valério Pillar, Jürgen Dengler, Helge Bruelheide, Jonathan Lenoir, Richard Field; front row: Sylvia Haider, Maria Sporbert, Milan Chytrý, Florian Jansen, Oliver Purschke, Ute Jandt, Franziska Schrodt, Peter van Bodegom, Robert Peet, Masha van der Sande; not on the picture: Marten Winter and Miguel Mahecha (Photo: Franziska Hübner).

Current sPlot paper projects

During the Workshop III, we intensively worked on the following paper projects and made big progress. The first paper will likely be submitted in about two months' time, No. #02 and #03 in early 2017, and for the remaining three we envisage that they should be ready in mid-2017 (some titles and author orders are preliminary):

- **#01 – Jürgen Dengler et al.:** <Paper describing the content of sPlot 2.1 and the research opportunities that our global plot database opens>
- **#02 – Jonathan Lenoir et al.:** "A resampling strategy to analyze community assembly rules in a big data world"
- **#03 – Helge Bruelheide et al.:** "Global trait-environment relationships revealed by sPlot, the global vegetation plot database"
- **#04 – Oliver Purschke et al.:** "The role of climate stability for trait variability across scales and biomes"
- **#06 – Masha van der Sande/Tiffany Knight et al.:** <Invasive/alien species>
- **#08 – Valério D. Pillar et al.:** "A global assessment of functional diversity and redundancy effects on ecosystem stability during climatic anomalies"

In the case of paper No. #01, 25 core authors are currently working on the manuscript. As soon as a first complete version is available, all potential co-authors (sPlot Custodians and for larger databases also Deputy Custodians; and interested data contributors from TRY) will receive the manuscript for commenting. In the context of the other papers, all sPlot Custodians and data contributors from TRY had been invited and those who opted to become active co-authors will be contacted by the lead author soon to be informed about the time schedule and how and when they can get actively involved.

Forthcoming sPlot paper projects

Already approved paper projects that will start in the near future:

- **#05 – Brody Sandel et al.:** “Can Earth observation data be used to measure changes in taxonomic and functional diversity?”
- **#09 – Brody Sandel/Anne-Christine Monnet:** “Downscaling of species distribution models: towards fine-grain presence-absences for grasses”
- **#10 – Michael Kessler:** “A global model of local fern diversity”

The final list of all authors for each of these opt-in-papers has been compiled by Ute Jandt and ranges from 28 to 80.

Ideas for new paper projects proposed during the workshop (they have not yet been submitted as formal proposals to the Steering Committee, nor been approved by the Steering Committee; you will receive the official proposals when this has happened):

- Oliver Purschke et al.: <Relationship between taxonomic, functional and phylogenetic diversity and its scale-dependence across the world’s biomes>
- Jens Kattge et al.: <Towards global maps of plant traits>
- Franziska Schrodtt et al.: <Assessing the effect of ecological history on plant species distributions>
- Franziska Schrodtt et al.: <The global diversity of aquatic macrophytes>
- Maria Sporbert/Helge Bruelheide et al.: <Ranges and biotic niches>
- Helge Bruelheide/Stephan Kambach et al.: <Comparing methods to estimate biotic niche breadths>
- Helge Bruelheide et al.: “Defining plot-specific species pools, using sPlot, the global vegetation plot database”
- Sylvia Haider, Borja Jiménez-Alfaro et al.: <Community similarity and functional diversity in alpine areas>
- Borja Jiménez-Alfaro et al.: <Integrating seed traits in plant functional ecology>
- Peter van Bodegom/Jonathan Lenoir/Florian Jansen et al.: “Resampling revisited: where and how biogeographers should concentrate their research effort”

According to the sPlot Rules, every member of the sPlot Consortium **can propose own paper projects** based on the sPlot 2.1 database, provided the analyses are at global or at least continental scale and the applicant agrees with the sPlot regulations for data use. Applications for data use for publications can be submitted to the Chair of the sPlot Steering Committee (currently: Helge Bruelheide) at any time using the template available from the sPlot homepage (URL: https://www.idiv.de/en/sdiv/working_groups/wg_pool/splot.html). If the application is in agreement with the sPlot Rules, the Steering Committee will send it out to the complete sPlot Consortium whose members then can opt-in to become (active!) co-authors.

New associated data for macroecological studies

With the aim of facilitating analyses for sPlot projects, in the III workshop it was agreed to integrate the following information, which is now available for the consortium (For further details contact Borja Jiménez-Alfaro at borja.jimenez-alfaro@botanik.uni-halle.de):

sBiomes: the sPlot biome classification of the World. We created a shapefile with a simple but well-documented classification of the World in 10 major biomes (Fig. 4), which are named by corresponding climatic zones. Nine of these were digitalized from the classification established by J. Schultz (*The Ecozones of the World*, Springer, 2002). Additionally, we defined an Alpine biome

corresponding to the areas that climatically lie above the physiological treeline following the classification of C Koerner et al. (A global inventory of mountains for bio-geographical applications, *Alpine Botany* 2016, in press).

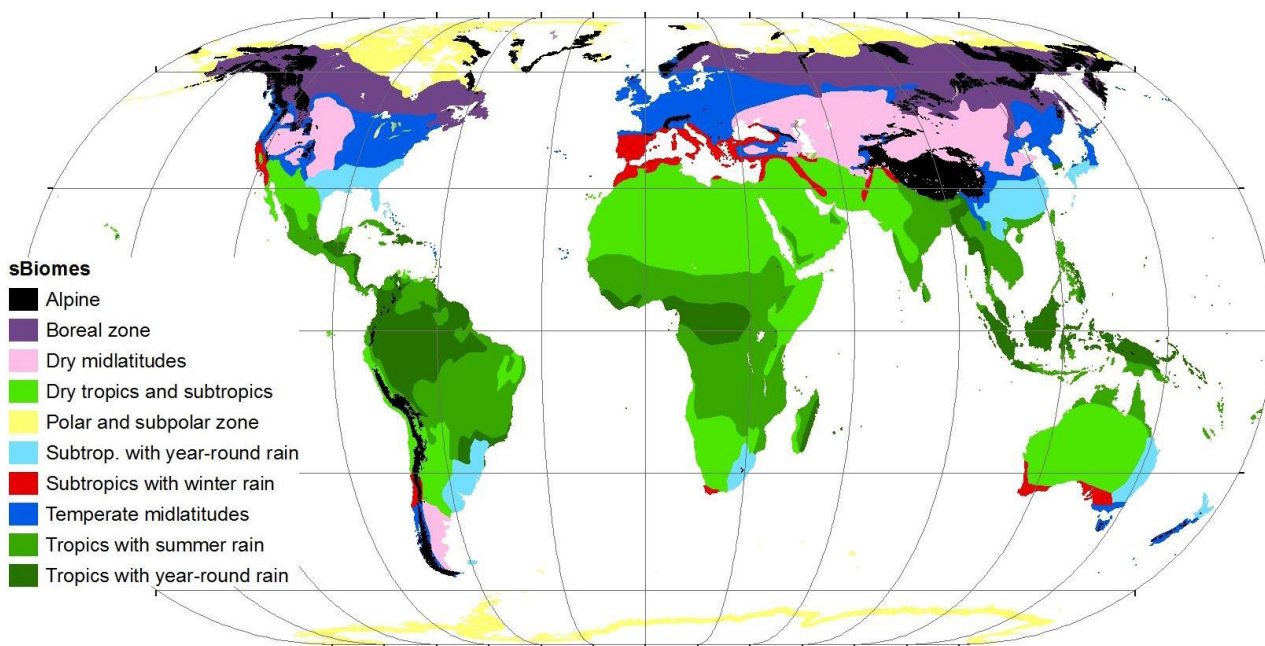


Fig. 4: Classification of the World's biomes in sPlot

Climatic and soil data: As a general requirement for most of the sPlot projects, we have prepared a geodatabase to link sPlot data with climatic and soil information currently available. All the plots in sPlot 2.1 have been linked to the bioclimatic variables offered by the **CHELSA** project V1.1 (www.chelsa-climate.org) averaging climatic data from the period 1979-2013 at 30 arcsec \sim 1 km; and to the **SOILGRID** project (www.soilgrids.org) by ISRIC – World Soil Information, resampled from 250 m to 1 km.

Data on formations: Most of the sPlot data has been standardized to several attributes of vegetation formations and habitat types, which are now linked to the plots by the descriptors of Naturalness, Forest, Shrubland, Grassland, Sparse vegetation and Wetland. A complementary classification based on the trait data also allows to distinguish between forests and non-forests.

Global Ecology and Biogeography Special Issue planned

On the last day of the workshop Richard Field, Deputy Chief Editor of **Global Ecology and Biogeography** (impact factor = 5.8), proposed a **Special Issue** in that journal devoted to **“Macroecological analyses of large databases of plots of sessile species”**. This Special Issue is focused particularly on macroecological studies based on plot data with co-occurrence, absence, abundance and links to environmental data, including outputs from on-going initiatives such as sPlot, European Vegetation Archive (EVA), US FIA, and others focused on trees, coral reefs, etc. Submissions are expected between June and December 2017. First accepted papers will be published online as Early View before the SI is finally put together. Editors will be Richard Field and other scientists from the current editorial board (e.g. Jonathan

Lenoir) or ad-hoc invited editors (e.g. Jürgen Dengler). A detailed call for contributions to this Special Issue will soon be published at the website of the journal and also sent to the lead authors of sPlot and EVA projects. If you yourself are also interested in this option, feel free to contact Richard Field (richard.field@nottingham.ac.uk).

Elections to the new sPlot Steering Committee

According to the sPlot Rules ([see pdf](#)), sPlot as a collaborative project is governed by a **five-head Steering Committee that represents the sPlot Consortium**, mainly consisting of the representatives of the 110 member databases. The term of duty of the current Steering Committee is ending at the end of 2016. Therefore, we will conduct the election for the **new Steering Committee 2017–2018**. Any member of the sPlot Consortium is eligible. We kindly ask you to **nominate candidates** via e-mail to the sPlot Coordinator, Borja Jiménez-Alfaro (borja.jimenez-alfaro@botanik.uni-halle.de) **until 10th December** at the latest. Self-nominations are also welcome. Agreed candidates are requested to **provide a short biosketch** (up to 150 words), explaining who they are, what their relation to sPlot is as well as their vision for its future.

The election will take place from 11th December to 10th January. Details, including the list of nominated candidates, will be announced at the beginning of December to all sPlot members. **Please make use of your right to vote!**

The current sPlot Steering Committee:

Milan Chytrý, Valério De Patta Pillar, Jens Kattge, Brody Sandel, Helge Bruelheide.

New sPlot Coordinator

During the last three and a half years Jürgen Dengler had served as sPlot Coordinator. Jürgen contributed tremendously to compiling this fantastic dataset. As primary point of contact to all members, he has handled all data that then became integrated with his support and with that of Ute Jandt in Stephan Hennekens's Turboveg 3 version. The Steering Committee would like to express our sincere gratitude to Jürgen for the enthusiasm he has put into sPlot development and hopefully will also put into the project in the future.

Starting on 1 October 2016, **Dr. Borja Jiménez-Alfaro started as Postdoc at iDiv responsible for sPlot.** This "Research officer" position was made possible by iDiv, as sPlot has become one of the research platforms at iDiv, addressing one of the key questions of iDiv: *How do diversity patterns and co-occurrence patterns vary in time and space, and how can this help us to infer possible processes?* These questions are also the focus of Helge Bruelheide's working group in the Martin Luther University Halle-Wittenberg (one of the three iDiv universities), to which the coordinator position is officially affiliated.

Borja is a vegetation ecologist with a PhD in plant ecology and conservation from the University of Oviedo (Spain). He has a broad interest in plant diversity, with a special focus on the patterns of compositional and functional diversity of plant communities. In the previous four years Borja held a postdoc position with Milan Chytrý at Masaryk University (Brno, Czech Republic), where he was actively involved in the European Vegetation Archive, leading or participating in several of the first research projects conducted with EVA data.

On 29 October 2016 Borja took over all responsibilities as sPlot Coordinator from Jürgen Dengler. Therefore please direct all your future organizational requests to borja.jimenez-alfaro@botanik.uni-halle.de, including data offers, paper proposals, data requests or changes

in identities or addresses of custodians and deputy custodians. Borja also will be in charge of strengthening scientific communication within the consortium.

News on the sPlot homepage

The **new sPlot homepage** (www.idiv.de/splot) contains various new items:

- A full overview of Consortium members and contributing databases (including numbers of contributed plots and links to their metadata on GIVD):
https://www.idiv.de/en/sdiv/working_groups/wg_pool/splot/consortium_and_contributing_databases.html
- A project page where all approved publication projects using sPlot data are listed:
https://www.idiv.de/en/sdiv/working_groups/wg_pool/splot/projects.html
- A report from the sPlot III meeting:
https://www.idiv.de/en/sdiv/working_groups/wg_pool/splot/meeting_iii.html

Further updates and some restructuring of the homepage are planned and your suggestions to make the homepage more informative and functional are highly welcome.

Future additions to sPlot

While sPlot 2.1 as a fixed version will serve for the first series of publications listed above, the preparation of a much expanded **sPlot 3.0** is planned for the future. We will be happy to accept updates of the current 110 member databases and specifically new databases from underrepresented regions of the world (see the map above). If you wish to make additional contributions or know other relevant vegetation-plot databases not yet included in sPlot, please inform Borja already now (borja.jimenez-alfaro@botanik.uni-halle.de).

With our best regards,

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sPlot URL: <http://www.idiv.de/splot>

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