



Re-launch of *Phytocoenologia*: new profile for the classic vegetation ecology journal

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A view back

Phytocoenologia is one of the oldest specialised journals in the field of vegetation ecology. Actually, “*Phytocoenologia*” is a coined word of Greek origin, referring to the study of plant communities. Since its foundation by Reinhold Tüxen in 1973, the journal publishes papers on diversity, classification, functioning and ecology of vegetation. It soon developed into one of the most influential journals in the field. Tüxen (1899–1980), one of the leaders of 20th century phytosociology, edited only the first five volumes, but he put his stamp on the journal and its publication policy. His conceptual ideas for *Phytocoenologia* were outlined in the preface of the first issue: “[The journal is] concerned with the objectives of phytosociology or phytocoenology by publishing articles about concepts and methods, and especially those works that convey new phytosociological information” (*Phytocoenologia* 1(1), 1973). Twenty-five years later Otti Wilmanns, who followed Tüxen as Editor-in-Chief, stated that “these principles have been kept” (Wilmanns & Deil 1998).

In 1998, Wilmanns passed the task on to Ulrich Deil, who had also followed her as Professor of Geobotany at the University of Freiburg, Germany. Deil has served *Phytocoenologia* as Editor-in-Chief for 17 years, being responsible for the editing of more than 300 papers, published in the volumes 28–44 (Deil 2014a). Considering the challenges of the present academic world, we cannot but marvel at this singular performance, which maintained the journal as one of the leading media in vegetation ecology. Thank you, Ulrich!

Recent developments

Phytocoenologia has always been closely connected to the *International Association for Vegetation Science*

(IAVS; <http://www.iavs.org>): many editors and editorial board members were active in IAVS, the journal published several Special Issues from conferences of IAVS and its subgroups, and IAVS members were eligible for reduced subscription rates. These informal relationships were put on a more formal basis in early 2014, when the owner of the journal, Borntraeger Science Publishers (Stuttgart, Germany; <http://www.borntraeger-cramer.de>) and the Governing Board of the IAVS signed a Memorandum of Understanding. *Phytocoenologia* is now officially “published in collaboration with the *International Association for Vegetation Science*”, meaning that the general publication policy will be decided and the chief editor(s) of the journal appointed jointly by the publisher and the IAVS Governing Board. In exchange, the journal offers space for publications from IAVS and its subgroups and guarantees special subscription rates for IAVS members. We believe this new relationship will be beneficial for both the journal and IAVS, as well as for the progress of our science.

Aside from these “constitutional” changes, the journal also has a new organizational structure. Instead of a single Editor-in-Chief, eight Editors-in-Charge have been appointed (Fig. 1). Each has equal rights and will serve as Receiving Editor for a certain period (usually three months) and distribute incoming submissions among the other editors, who will then guide the assigned manuscripts individually through the peer-review process and make the final decision regarding acceptance or rejection. This is now a standard procedure in many leading international journals. Furthermore, two Linguistic Editors in our team take care of the correctness and clarity of the articles. An Editorial Board, currently consisting of 41 members from 23 countries and six continents, provides a core pool of reviewers with broad geographical and topical expertise, though there is certainly space for further improvement of representation of extra-European regions.

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Fig. 1. The eight new Editors-in-Charge (from top left to bottom right): Erwin Bergmeier (Germany), Jürgen Dengler (Germany), Florian Jansen (Germany), Monika Janišová (Slovakia), Pavel Krestov (Russia), Jan Roleček (Czech Republic), D.A. “Skip” Walker (United States) and Wolfgang Willner (Austria).

Already in volume 44 (2014), the “Author Guidelines” and the layout of the journal have been somewhat adjusted to meet present-day standards of scientific publishing. The use of small capitals for in-text cited author names, and the quadrilingualism were abandoned. Further changes take effect with this issue (see the new Author Guidelines at <http://www.schweizerbart.de/journals/phyto/instructions>). We hope they will contribute to the reproducibility of the research, the clarity of the presentation and, last but not least, the visual appeal of the published articles. Most notable are the requirements to present synoptic vegetation tables with percentage constancy instead of constancy classes (to allow application of modern fidelity measures and direct reuse of these data in synthetic studies), to define diagnostic species according to explicit and repeatable rules and to present an Author Contributions statement when there is more than one author (to clarify the role of each listed author and to prevent “honorary authorships” that are in conflict with publication ethics).

One of our primary commitments is increasing the journal’s impact in the scientific community. Since 1997, *Phytocoenologia* has been abstracted in various science

citation and indexing services, including the Web of Science Core Collection, Scopus and others. All back issues are now available online. Submission and review of manuscripts are done using an online manuscript management system (<https://www.schweizerbart.de/submit/phyto/index.php/phyto>). Accepted manuscripts get digital object identifiers (DOIs) and are published online ahead of print (“PrePub”). An option of colour pages is now available at reasonable pricing, and we encourage authors to take advantage of this (best in form of full-page colour plates since charges are per page, not per figure) to increase the information value and attractiveness of their papers (for good examples, see Deil 2014b and He et al. 2015 in this issue). Also online supplements are possible and should be used, for example, to present full relevé tables, other original data and photo documentations of the described community types that would be too extensive for print publication. An open access option paid by the authors can help to increase the visibility of their research. Moreover, one outstanding article per issue will be selected by the editors for free access.

The new scope

With the increasing number of publication outlets in the field, we believe that a small journal such as *Phytocoenologia* needs a clear focus to be successful. The central topic of *Phytocoenologia* has always been the classification and surveying of plant communities worldwide, and we continue to be committed to this.

Recent experience in the two IAVS-owned journals, *Journal of Vegetation Science* and *Applied Vegetation Science*, shows that methodological papers in this field (e.g. Tichý et al. 2010; De Cáceres & Wisser 2012, Zelený & Schaffers 2012) and classic broad-scale classification studies (e.g. Wisser et al. 2011b, Luther-Mosebach et al. 2012; Eliáš et al. 2013; Li et al. 2013) are among their most-cited publications. *Phytocoenologia* will fill the niche between these two leading IAVS journals and various regionally focused phytosociological journals (or journals of natural history with a strong phytosociological component), such as *Acta Societatis Botanicorum Poloniae* (Poland), *Hacquetia* (Slovenia and SE Europe), *Koedoe* (southern Africa), *Lazaroa* (Iberian Peninsula), *Plant Sociology* (Italy), *Preslia* (Central Europe), *Tuexenia* (Central Europe) and *Vegetation of Russia* (Russia). Both *Phytocoenologia* and the related journals will mutually benefit from such “niche partitioning”. The new editorial team of *Phytocoenologia* is closely connected to the IAVS and its subgroups as most editors and many Editorial Board members have leading roles in these.

We acknowledge the words of the mineralogist Paul Niggli (cited by both Tüxen and Wilmanns) “to progress science it is most important to build bridges and to see interdependencies” (authors’ translation). We guarantee that *Phytocoenologia* will continue to build bridges between modern phytosociology, fundamental ecology and applied fields. Thus our new statement of scope starts as follows:

Phytocoenologia is an international, peer-reviewed journal of plant community ecology. It is devoted to vegetation survey and classification at any organizational and spatial scale and without restriction to certain methodological approaches.

The journal publishes original papers that develop new vegetation typologies as well as applied studies that use such typologies, for example, in vegetation mapping, ecosystem modelling, nature conservation, land-use management or monitoring. Particularly encouraged are methodological studies that design and compare tools for vegetation classification and mapping, such as algorithms, databases and nomenclatural principles. Papers dealing with conceptual and theoretical bases of vegetation survey and classification are also welcome. While large-scale studies are preferred, regional studies will be considered when filling important knowledge gaps or presenting

new methods. This vision is reflected by the new subtitle *International Journal for Vegetation Survey and Classification*.

Permanent Sections and Special Issues

Two new permanent sections devoted to “Ecoinformatics” and “Phytosociological Nomenclature” will appear at the end of each issue. The section “Ecoinformatics” (Section Editors: Jürgen Dengler & Florian Jansen) reflects the need in modern, broad-scale vegetation typology for very large amounts of vegetation-plot data to be stored in regional, national and supranational vegetation databases (Dengler et al. 2013). Community-scale analyses across large spatial extents require the synthesis of data from generations of phytosociologists who collected these data (Dengler et al. 2011). Therefore, this section welcomes papers that develop and present new statistical and/or computational methods for dealing with big data in vegetation ecology. In cooperation with the *Global Index of Vegetation-Plot Databases* (GIVD; Dengler et al. 2011; see <http://www.givd.info>), this section will also serve as official venue for *Long and Short Database Reports* that describe GIVD-registered databases (see Landucci et al. 2015; Peyre et al. 2015; both in this issue) and for reports from GIVD (e.g. Jansen et al. 2012).

The section “Phytosociological Nomenclature” (Section Editors: Erwin Bergmeier & Wolfgang Willner) welcomes comprehensive nomenclatural revisions of major syntaxa, analyses of nomenclatural problems related with the names of widespread high-rank syntaxa, and discussion papers on general nomenclatural issues that are of interest to an international readership. In cooperation with the *Working Group for Phytosociological Nomenclature* of the IAVS, this section serves as the publication outlet for proposals for *nomina ambigua* or *nomina conservanda* (see Willner et al. 2015b for the procedure, and Willner 2015 as an example; both in this issue) as well as for the recommendations of the Working Group’s *Committee for the Conservation and Change of Names* (CCCN) (e.g. Willner et al. 2011).

We will continue to produce Special Issues on specific topics. Currently, two such Special Issues are in preparation, both involving regular editors and guest editors from the respective groups. Together with the *European Dry Grassland Group* (EDGG; <http://www.edgg.org>), we will prepare a paper collection on “Palaeartic grasslands” (S.I. editors Jürgen Dengler, Nikolai Ermakov, Monika Janišová & Wolfgang Willner), continuing a long-standing tradition of EDGG with such Special Features (e.g. Janišová et al. 2011; Dengler et al. 2013, 2014; Apostolova et al. 2014). Within the framework of the *European Vegetation Survey* (EVS; <http://www.euroveg.org>) a new Special Issue on “Saline habitats” (S.I. editors Erwin Bergmeier & Joop H.J. Schaminée) has been announced.

Types of papers we would like to see in *Phytocoenologia*

Phytocoenologia will continue to have its main focus on the publication of **comprehensive and well-documented vegetation typologies**. Within Europe, the large amounts of plot data that are now available from national vegetation databases (Dengler et al. 2011) and the European Vegetation Archive (EVA; <http://euroveg.org/eva-database>; see Chytrý et al. 2014b), allow us to enter a new era of vegetation classification: The aim is to reach beyond regional studies toward consistent broad-scale classifications based on comprehensive datasets of individual relevés, analysed with reproducible methods. Already in 1994, Zechmeister & Mucina published a pan-European plot-based classification of a whole vegetation class (*Montio-Cardaminetea*), but only in the last decade has there been an increasing focus on broad-scale syntheses, many of them published in *Phytocoenologia*. Remarkable examples at national scales include Janišová & Dúbravková (2010), Indreica (2012) and Slezák et al. (2014), while Šumberová & Hrivnák (2013) and Terzi (2015 in this issue) cover supranational territories and Michl et al. (2010), Šibík et al. (2010) and Thébaud et al. (2012) even address sub-continental scales. Also regional studies are welcome if they are based on comprehensive datasets and the results are presented with a clear focus towards a European synthesis (e.g. Dengler & Löbel 2006; Reczyńska 2015 in this issue) or with the aim to develop methodological approaches further (e.g. Landucci et al. 2013).

While, after one century of intensive phytosociological sampling, in Europe (see above) and parts of North Asia (e.g. Miyawaki & Nakamura 1988; Krestov et al. 2010) a period of synthesis has been reached, vegetation-plot data from other **non-European regions** are still scarce or even non-existing (Dengler et al. 2011). Thorough, plot-based vegetation descriptions from these under-represented areas are much needed for basic and applied research. Each well-conceived study from such insufficiently investigated regions is path-breaking, and *Phytocoenologia* will continue to be a major outlet for such papers. Good examples from recent years include Ermakov (2010), Noroozi et al. (2010), Chepinoga et al. (2013) and Kolbek & Jarolímek (2013) from Asia, Wittig et al. (2011) from Africa, Drees & Daniëls (2009) and Breen (2014) from North America as well as Cuello A. & Cleef (2009), Deil et al. (2011) and Galán de Mera et al. (2014) from South America. While *Phytocoenologia* traditionally was focused on classifications based on the Braun-Blanquet approach of phytosociology (Braun-Blanquet 1964, Dengler et al. 2008), in the future we would like to see also manuscripts with other approaches, such as recent studies from the United States (Matthews et al. 2011; for approach see Faber-Langendoen et al. 2014), southern Africa (Dingaan & du Preez 2013; for

approach see Brown et al. 2013) or New Zealand (Wiser et al. 2011b).

Recent developments in the field of vegetation classification emphasize the importance of rigorously defined **concepts, classification protocols and sets of formal rules** (De Cáceres & Wiser 2012; De Cáceres et al. in press). Formalized classification methods have rapidly developed, mainly since the beginning of this century (e.g. Bruelheide & Chytrý 2000; Dengler 2003; Willner 2011; Landucci et al. in press). Many of their applications have been published in this journal (e.g. Janišová & Dúbravková 2010, Landucci et al. 2013, Šumberová & Hrivnák 2013). However, it is still under debate whether a useful classification scheme should rather “mimic” traditional classifications by formalizing them, aim to find “the best” possible division based on the more comprehensive data available today or combine both philosophies as in semi-supervised classification approaches (Tichý et al. 2014). Finally, the question how the outcome of numerical classifications (which always will be limited in geographic and/or syntaxonomic extent) can be properly incorporated into a universal classification system is an urgent, yet unresolved question.

Increasing effort is made to **unify the vegetation classification systems** at supranational levels (e.g. Chytrý et al. 2011, Dengler et al. 2013). However, no single classification method can satisfy every need (Dengler et al. 2008; De Cáceres et al. in press). Already within the modern implementations of the Braun-Blanquet approach there are several sub-approaches that differ significantly in their philosophy and methods (e.g. Dengler et al. 2005; Chytrý 2007), and we are lacking consensus even for basic concepts such as the association (Dengler 2003; Willner 2006; Jennings et al. 2009). It is important to be aware of the differences in aims, scope and conventions of the different methods while at the same time fostering exchange and discussion in a constructive spirit. Studies contributing to these difficult tasks are particularly welcome. We are also very interested in papers that attempt to bridge the differences between the classification approaches currently used in different parts of the world, including Braun-Blanquetian phytosociology (Braun-Blanquet 1964; Dengler et al. 2008), the EcoVeg approach (Faber-Langendoen et al. 2014), the integrated synusial approach (Gillet & Galandau 1996) or the approach currently used in southern Africa (Brown et al. 2013), to name just a few (for more examples, see Whittaker 1973 and De Cáceres et al. in press). This will be essential for developing global classifications and understanding of large intercontinental biomes. Examples include the new attempts in North America to develop a global approach to description and classification (Faber-Langendoen et al. 2014) and the effort to build an Arctic Vegetation Archive for use in a pan-Arctic vegetation classification (Walker 2014).

While *Phytocoenologia* has published **methodological papers** from time to time (e.g. Friedmann et al. 2011;

Bhatta et al. 2012), we would like to see this article type be more prominent in the future. While many traditional phytosociological papers just stated something like “*plots were sampled and classified according to Braun-Blanquet (1964)*”, we expect authors to provide a detailed account of what they have done. Major methodological aspects to be considered during field sampling include placement of plots (owing to the fact that sampling cannot be at the same time random in geographic and in ecological space: Botta-Dukát et al. 2007; Diekmann et al. 2007; Roleček et al. 2007; De Cáceres et al. in press), size of the plots (Chytrý & Otypková 2003; Dengler et al. 2009), timing of the relevés (Vymazalová et al. 2012), taxonomic groups considered (Berg & Dengler 2005) and plant performance measure (e.g. cover-abundance classes vs. % cover). When preparing data for analysis, particularly when they come from multiple projects or databases, major questions to be addressed are how the target vegetation should be extracted, whether and how resampling should be applied (Knollová et al. 2005; Lengyel et al. 2011) and how inconsistent plant taxonomies could be handled to minimize distorting effects (Jansen & Dengler 2010). There is a plethora of numerical classification algorithms (see recent overviews by De Cáceres et al. in press; *IAVS Vegetation Classifications Methods Website* at <https://sites.google.com/site/vegclassmethods/home>), therefore any choice needs careful consideration. Moreover, while it is now generally acknowledged that diagnostic species should be determined by the use of reproducible numerical methods, there are several solutions available (e.g. Chytrý et al. 2002; Dengler 2003; Willner 2006; Tsiripidis et al. 2009).

Beyond classifications at plant community level, *Phytocoenologia* is open to coarser classifications of the vegetation cover, such as of **habitat types** (e.g. Bergmeier et al. 2010), **landscapes** (e.g. Bölöni et al. 2011), **formations** or **biomes/ecozones** (e.g. Wessels et al. 2011). Likewise, studies aiming at producing **vegetation maps** at any scale fit into our journal. While both types of papers have been rare in recent years, we clearly see a need for further development of current approaches to meet, for example, the demands of conservation management and global change modelling.

Vegetation survey and classification are major tools to understand the global phytodiversity, its patterns and drivers, as well as its threats and proper management. Therefore, *Phytocoenologia* is also the place to publish studies that **apply vegetation typologies and vegetation maps** for such purposes. In fundamental ecology, well-conceived plant community types can be used to study the match (or mismatch) between plant and animal communities (e.g. Beil et al. 2014) or plant and microbial communities (e.g. Zachow et al. 2009). Further, community typologies are useful to address questions of scale-dependency of diversity of larger entities, e.g. by syn-taxonomy-area relationships (Jiménez-Alfaro et al. 2014; Pé-

rez-García et al. 2014). Present-day plant community types could be used as surrogates for interpreting palynological records (López-Sáez et al. 2015 in this issue) or to characterise the remaining stands of rare relic-endemic species (He et al. 2015 in this issue). In the context of conservation, plant community types could serve as objects of Red Lists at an intermediate scale between species and ecosystems (Berg et al. 2014). Re-visiting old vegetation plots could help quantifying vegetation change during recent decades (Meyer et al. in press), while analysis of vegetation change by simple usage of plot databases is tricky (Jandt et al. 2011; Chytrý et al. 2014a). Also ethnobotanical approaches can be nicely connected to vegetation survey, for example, by asking how vegetation typologies of peasants match with those of scientists (Molnár 2013) or how certain semi-natural phytocoenoses are shaped by specific land-use techniques (Babai & Molnár 2014). This enumeration of applied studies is far from comprehensive but might help to elucidate the great potential that lies in sound vegetation typologies.

We also welcome contributions focusing on phytosociological nomenclature, provided they are of relevance for a broader international audience. Outstanding examples of this kind of studies are rare – perhaps due to the lack of attractive publication venues – but the thorough nomenclatural revision of a whole phytosociological order by Terzi (2011) could serve as a model for the manuscripts that we would like to accommodate in the new “**Phytosociological Nomenclature**” section. This section is also open to the discussion of different interpretations of the nomenclatural rules (e.g. Willner et al. 2015a in this issue) and suggestions for developing them further (e.g. Mucina 1997).

The “**Ecoinformatics**” section, apart from presenting reports on new vegetation-plot databases and related ecoinformatics resources (see above), encourages papers on new approaches to better use the data in vegetation-plot databases (e.g. Jansen & Dengler 2010), ways to effectively connect them with other “big data” and reports on new software tools (e.g. Hennekens & Schaminée 2001; Tichý 2002; Wiser et al. 2011a; Jansen & Oksanen 2013). Another major theme of this section will be the handling of intellectual property rights in large vegetation-plot databases (e.g. Janßen et al. 2011) and procedures to ensure better scientific reward for providing such data.

Finally, while “Research Papers” based on the analysis of data and “Reports” (mainly in the two permanent sections) will form the backbone of the journal, we would particularly like to encourage two contribution types without original data. “**Forum Papers**” are defined in our “Author Guidelines” as “*essays with original ideas / speculations / well-supported arguments, but without new data*”. They contribute to the debate on current and often controversial ideas in vegetation classification, including responses to and criticism of other

such papers published in *Phytocoenologia* or elsewhere. Prominent examples of this article type are Palmer & White (1994) on the existence of ecological communities, Ewald (2003) on the pros and cons of phytosociology, Chiarrucci et al. (2004) on potential natural vegetation, Willner (2006) on the association concept and De Cáceres & Wiser (2012) on consistency in vegetation classification. While “Forum Papers” should be short, the second type of article that comes without new data, “Review and Synthesis”, can be longer due to its comprehensiveness. Such articles could, for example, provide a textbook like overview of the vegetation of a country or larger region (e.g. Chytrý 2012) or a commented and harmonized syntaxonomic synopsis (e.g. Lawesson 2004). The challenge as well as the virtue of both publication types are to be comprehensive in the reviewed literature and incorporated knowledge, but at the same time concise in the presentation.

Conclusions and outlook

We, the Editors-in-Charge, hope that you, our readers, will like the new profile of the journal and feel encouraged to submit your good papers in the fields of vegetation classification and survey as well as ecoinformatics to *Phytocoenologia*. With your help, we hope to remain not only one of the major venues for the publication of new vegetation typologies, but also to become the medium where the methodologies of our science are developed and tested and its underlying philosophy is debated. To achieve this, we appreciate your help as reviewers and your constructive feedback to maintain and further improve the quality of *Phytocoenologia*.

Author contributions

All authors jointly planned, wrote and revised the manuscript, while J.D. as the currently acting Receiving Editor was responsible for the final shape.

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