IAVS Bulletin 2014 / 1

Treetop walk in the SW corner of Western Australia with tingle and karri mosaic tall forest

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Contents

Salt pans with *Tecticornia* and *Sarcocornia* at the feet of the Stirling Range National Park, Australia

Welcome to the

57th Annual Symposium of the International Association for Vegetation Science

"Biodiversity & Vegetation: Pattern, Processes, Conservation"

1–5 September 2014

The University of Western Australia, Perth, Western Australia

Verticordia grandis at Mt Lesueur National Park, Australia

Daintree National Park north of Cairns, Queensland, Australia

Featured laboratories of IAVS members

Research Unit of Ecology and Dynamics of Human-driven Systems (EDYSAN) at the Jules Verne University of Picardy in Amiens, France

Head of the research unit is Guillaume Decocq, member of the IAVS Council and JVS Editorial Board

Ecosystems are often strongly impacted by humans worldwide, and part of their functioning is driven by human activities. EDYSAN is a mixed research unit between the Jules Verne University of Picardy (UPJV) in Amiens and the National Center for Scientific Research (CNRS) whose main research activities are devoted to the integrated, multiscalar analysis of the production systems (including agro-ecosystems and forest ecosystems) in the context of global change. Our group is composed of ca. 60 members, half of them being researchers in a permanent position, distributed among three labs: Landscape and Ecosystems Geo-Ecology lab, Plant Ecophysiology and Agro-Ecology lab, and Plant-Insect Interaction Bio-Ecology lab.

As the Picardy region hosts the most fertile arable lands in France, but also has among the most intensive agricultural practices, most of our applied research focuses on agro-ecosystems to incorporate agro-ecological concepts into the design of innovative agriculture systems. More specifically, we assess the impacts of perennial bioenergy crops, direct seeding under cover, and hedgerow and woodland networks on agro-ecosystem biodiversity and functioning.

Our fundamental research consists in integrative approaches "from genes to landscape" and aims at understanding how some key genes in dominant plant species may drive ecosystem and landscape functioning via effect traits, and vice-versa, how landscape structure and composition influence species and gene flows via response traits.

The main lines of research of EDYSAN include the:

(i) dynamics of forest metacommunities in agricultural landscapes,

(ii) ecology of biological invasions,

(iii) historical ecology of forests and influence of past land use on today biodiversity,

(iv) effects of interactions between climate warming and other components of global change on ecological niches,

Soil seed bank sampling in a bioenergy crop field (*Miscanthus x giganteus*) to analyze potential plant diversity under perennial crops.

(v) impact of new crops on biodiversity and agro-ecosystem and landscape functioning,

(vi) effects of plant genetic diversity on trophic chains, and the

(vii) plant community response to stress and disturbances. Our approaches combine field surveys, field and greenhouse controlled experiments, lab analyses, and ecoinformatics.

Our group has developed various approaches, such as dendro-ecology and tree growth measurements, taxonomic and functional diversity of plant communities, carbon and nitrogen metabolisms in plants, metagenomics approaches of soil biodiversity, genetic and functional genomics of plants using *Arabidopsis thaliana* as a tool, plant-aphids relationships using electro-penetrography, study of insect diet using molecular markers, physiological and biochemical analyses of plant-insect-insect relationships, chemical ecology of plant-plant, plant-insect and insect-insect relationships.

The American black cherry *Prunus serotina* is the most serious forest invader in Europe. Like many other invasive trees and shrubs around the world, the reasons of its success are still obscure.

Examples of ongoing research projects are (1) the study of the relationships between biodiversity and ecosystem services of woodlands and hedgerow networks in agricultural landscapes. We are currently conducting the smallFOREST project (see www.u-picardie.fr/smallforest/) within a European consortium, which is devoted to the ecosystem services delivered by small forest fragments in relation with the plant diversity they host; and the FORHAIE project, which looks at hedgerows as ecological corridors for plant species and genes moving between forest fragments. (2) the study of biological invasions in forests, with a special focus on exotic trees and shrub and their associated exotic biota. One of the main models we are working on is the American black cherry (*Prunus serotina* Ehrh.), which is one of the most problematic invaders in European temperate forests. We investigated the mechanisms behind invasion and the impact on resident plant communities. We are now looking at its functional relationships with native and exotic biota, such as the Asiatic *Drosophila suzukii*. Using cross-continental comparisons, we also search for general rules in the invasion success of woody species in forest, with a special attention to C and N metabolism.

Our research unit is developing scientific collaborations with various groups worldwide. Among others, it participates in the FLEUR network (see page 7 in this Bulletin, and www.fleur.ugent.be/) whose main goal is to assess plant population and community response to climate.

Please visit our website at www.u-picardie.fr/edysan to learn more about us and for a list of the publications.

Typically sharp discontinuity in the vegetation studied by historical ecology. On the right, the plant community is dominated by ancient forest species like *Anemone nemorosa* and *Hyacinthoides non-scripta*, whilst on the left it is dominated by *Mercurialis perennis*, revealing the presence of a buried past medieval settlement.

Analyzing metacommunity dynamics requires the study of plant dispersal among local communities. Here we use Astroturf® mats as seed traps to analyze the stream-associated seed deposit and evaluate the role of these streams as ecological corridors between forest fragments.

The FLEUR network of forest researchers

The annual mean temperature in central Europe is predicted to increase by 1.0° to 5.3 °C by 2081−2100. The warming of the climate system will have a profound impact on organisms, which – to avoid extinction – will have to adapt physiologically to the new environment, shift their phenology, or migrate to new, suitable habitats. Species for which migration processes are predicted to be slow include ancient forest plants that show a low dispersal and colonizing capacity. The study of the dynamics of forest plants in a changing environment is the main scientific objective of FLEUR (http://www.fleur.ugent.be/), a European network of forest ecologists distributed across a 2000 km-gradient from NW France to N Sweden (see Fig. 1).

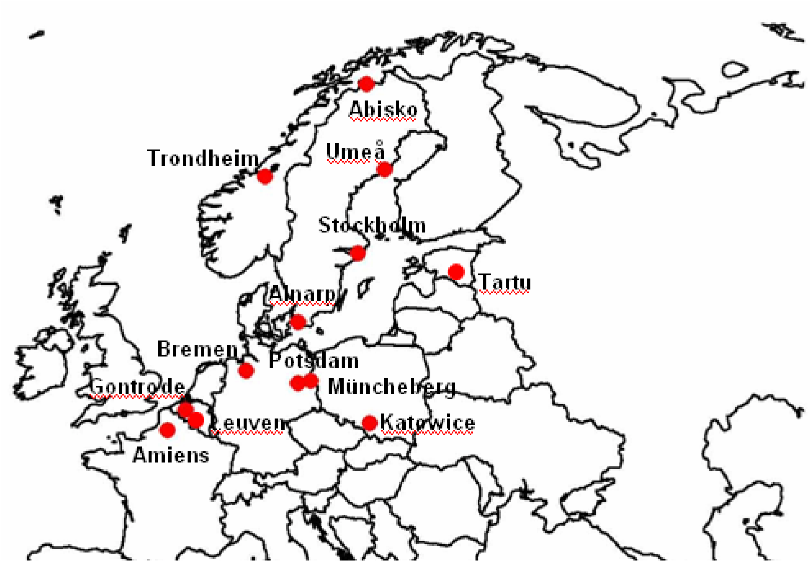

Fig. 1. Map of FLEUR study regions

One of the main research approaches of the FLEUR network is to use this latitudinal climatic gradient as a *space-for-time* substitution, and to quantify plant and population traits to predict forest species' responses to future climate change. The work is both observational and experimental, and it makes extensively use of large databases of vegetation plots sampled over large spatial and temporal scales.

FLEUR has from the beginning focused on herbaceous forest plants. The first projects used sets of several species to compare the germination requirements and seed mass of fast- and slow-colonizing herbs (Graae *et al.* 2009) or to disentangle the effects of latitude, temperature and local environment on reproduction (De Frenne *et al.* 2009). In the latter study it was shown that latitude and temperature had pronounced effects on reproductive investment and seed output in early-flowering species with a northern distribution, but no effects on later-flowering and more southerly species. Many of the later studies looked in more detail at the responses of single species, for example the spring-flowering geophyte *Anemone nemorosa* (De Frenne *et al.* 2010, 2011c), and increasingly used experimental approaches. De Frenne *et al.* (2011b), for example, combined transplant experiments along a latitudinal gradient with open-top chambers (passively heating a small vegetation plot, see Fig. 2) to examine the effects of temperature on growth and reproduction of both *A. nemorosa* and the grass *Milium effusum* (Fig. 3). Both the vegetative growth and the reproductive success of *A. nemorosa* (Fig. 3) benefited from higher temperatures, whereas plant size and reproductive performance of *M. effusum* decreased towards the south.

One aim of the FLEUR research is to find out whether groups of species sharing certain traits show different patterns in their responses to climatic and landscape changes, or whether species responses are rather idiosyncratic. This overall aim is achieved also by synthesis papers making use of earlier findings. In a meta-analysis of 18 studies and 90 forest herb species across Europe, De Frenne *et al.* (2011a) showed that the recovery of short-lived forest herbs in post-agricultural forests increased with the availability of forests in the landscape. Wasof *et al.* (2013) examined the niche shifts of understory plants along a latitudinal gradient.

Fig. 2. Open-top chamber with *Anemone nemorosa* (Photo: *Pieter de Frenne*)

More recent projects include the study of phenotypic plasticity of forest herbs. Based on a comparison of five forest herbs between two regions in Germany with different temperature regimes (where two species showed a higher phenotypic variation under warmer climatic conditions, Lemke, Kolb & Diekmann 2012), the study has been expanded to now encompass the variation in growth and reproduction of species along the entire FLEUR latitudinal gradient, focusing on two species with wide geographic ranges and relatively high abundances in the study regions, i.e. *M. effusum* and *Stachys sylvatica* (Fig. 3).

Another line of research focuses on seed banks, central to the regeneration strategy of many plant species. To date, the impact of climatic factors on seed bank dynamics, however, is poorly understood. This has prompted a study on the seed production and seed bank density of four forest herbs (*Geum urbanum*, *M. effusum*, *Poa nemoralis* and *S. sylvatica*) along the gradient (Plue *et al.* 2013). Since two years, FLEUR has started to examine woody species in more detail, too. First results of a study on the effects of warming and drought on the regeneration and early growth of two *Acer* species were recently published by Caron *et al.* (2014).

Fig. 3. Three forest herb species extensively studied in the research of the FLEUR network:

Milium effusum (left),

Stachys sylvatica (upper right), and

Anemone nemorosa (lower right)

Photos:
Isa Lemke & Pieter De Frenne

The researchers in the FLEUR network share an interest in forest ecology and passion for forest plants, and they have been working together since almost 10 years, being convinced that latitudinal gradients offer excellent natural laboratories that enable us to infer the species' responses to temperature and future climate change (De Frenne *et al.* 2013). Starting in 2006 on the initiative of Kris Verheyen and Bente Graae with a meeting in Ghent, Belgium, the FLEUR network has since then met at least once a year to plan the scientific activities, discuss future research and organize paper writing. The group has also on several occasions assembled in the framework of symposia and other international meetings. The latest meetings were held in Bremen (Germany) in 2013 and, only few weeks ago, in Bruges in Belgium, formerly being part of the Hanseatic League and with its historic city centre a World Heritage Site of the UNESCO.

Most of the work in FLEUR is based on the commitment of its members to scientific research, and there are no regular grants involved to employ staff. However, since 2007 network money has been made available by the Research Foundation in Flanders (FWO) (see http://www.fleur.ugent.be/funds.html), covering travel grants and the costs for the meetings. Many of the researchers active in FLEUR are also cooperating in the BioDiversa project *smallFOREST* on the biodiversity and ecosystem services of small forest fragments in European agro-landscapes (http://www.u-picardie.fr/smallforest/uk/).

Above: The city of Bruges (Belgium), venue of the 2014 FLEUR meeting (photos: *Martin Diekmann*)

Left: FLEUR group at its meeting in Bruges, Belgium, in February 2014 (photo: *Pieter De Frenne*)

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Martin Diekmann

Toward a pan-Arctic vegetation archive and classification: Two recent workshops

The Arctic Vegetation Archive (AVA) is a circumpolar effort to assemble Arctic vegetation plot data into a publically accessible web-based archive and promote its application to northern issues, including a pan-Arctic vegetation classification framework. This report describes two AVA workshops held in Krakow, Poland (14-16 April 2013), and Boulder, Colorado, USA (14-16 October 2013). A brief history of the AVA prior to 2013 includes:

1992 The first International Arctic Vegetation Classification Workshop was held in Boulder, Colorado, and resolved to develop a database of arctic relevés and a prodromus of vegetation types for the Arctic. Several papers reviewed the status of phytosociological research in the Arctic and were published in the *Journal of Vegetation Science* (Walker *et al.* 1994).

2003 The Circumpolar Arctic Vegetation Map was published by the Conservation of Arctic Flora and Fauna (CAVM Team 2003) and described in an article in the *Journal of Vegetation Science* (Walker *et al.* 2005). The map helped to define the need for a vegetation classification for the Arctic. The attendees at the last CAVM workshop in Tromsø, June 2004 recommitted themselves to creating the necessary database. Several papers presented during the Tromsø workshop were published in *Phytocoenologia* (Daniëls *et al.* 2005).

2011 The Conservation of Arctic Flora and Fauna (CAFF) and the International Arctic Science Committee endorsed the International Arctic Vegetation Database (IAVD) concept (later changed to the Arctic Vegetation Archive). The basic concept for the AVA was laid out in the Conservation of Arctic Flora and Fauna (CAFF) Strategy Series No. 5 (Walker & Raynolds 2011).

2012 Two workshops sponsored by the Nordic Network on climate and Biodiversity (CBIO-NET) in Roskilde, Denmark, helped to lay the foundation for the AVA and highlighted its application for modeling and predicting biodiversity (Walker *et al.* 2013b).

The Krakow AVA workshop

The Krakow AVA Workshop was held in association with the Arctic Science Summit Week, 13-19 April 2013. It was the first international meeting of the AVA community. Forty-two people participated representing all the circumpolar countries. Twenty-five papers included reviews of the history and need for the AVA, the status of vegetation data collection and classification in each of the circum-polar countries, and reviews of the various database approaches currently in use. The papers were published in CAFF Proceeding Volume No. 10 (Walker *et al.* 2013a).

The major accomplishments of the workshop included: 1) a thorough review of the numbers and quality of plot samples in each of the countries; 2) a consensus among the Arctic countries regarding the geographic scope of the database, the types of data that will be included, the general approach for building the database, and the initial steps for recruiting people and resources to complete the database.

The workshop concluded with the "Krakow Resolution for Preparation of an Arctic Vegetation Archive", which rededicated the international community of Arctic vegetation scientists to six joint tasks: *1) develop an international organizational framework and secure funds for the AVA; 2) compile vegetation plot data (relevés) into the AVA using the Panarctic species lists as a common taxonomical base; 3) create a prototype AVA by the 3rd International Conference on Arctic Research Planning (ICARP III) to be held in 2015; 4) publish a compilation of Arctic vegetation types*

(Prodromus) and a bibliography of Arctic vegetation studies; 5) develop a syntaxonomical classification for the circumpolar Arctic; and 6) promote the application of the AVA to northern issues.

Rich non-acidic tundra plant community, Sagwon Upland, Northern Alaska. Common species include: *Anemone parviflora*, *Arctagrostis latifolia*, *Arctostaphylos rubra*, *Astragalus umbellatus*, *Aulacomium turgidum*, *Cardamine hyperborea*, *Carex bigelowii*, *C. membranacea*, *C. scirpoidea*, *C. vaginata*, *Cassiope tetragona*, *Castilleja caudata*, *Cetraria islandica, Cladonia pyxidata*, *C. pusillum*, *Dactylina arctica*, *Dicranum spadacium*, *Distichium capillaceum*, *Ditrichum flexicaule*, *Dryas integrifolia*, *Eriophorum angustifolium* ssp. *triste*, *E. vaginatum*, *Equisetum arvense*, *E. variegatum*, *E. scirpoidea*, *Flavocetraria cucullata*, *F. nivalis*, *Hylocomium splendens*, *Hypnum bambergeri*, *Kobresia myosuroides*, *Lupinus arcticus*, *Minuartia arctica*, *Oxytropis maydelliana*, *Papaver macounii*, *Parrya nudicaulis*, *Pedicularis capitata*, *P. kanei*, *P. langsdorfii*, *Polygonum bistorta* ssp. *plumosum*, *P. viviparum*, *Pyrola grandiflora*, *Rhododendron lapponicum*, *Salix glauca*, *S. lanata* ssp. *richardsonii*, *S. arctica*, *S. reticulata*, *Saussurea angustifolia*, *Saxifraga hieracifolia*, *Senecio atropurpureus*, *S. resedifolius*, *Stellaria longipes*, *Tofieldia pusilla*, *Tomenthypnum nitens*, *Rhytidium rugosum*, *Thamnolia subuliformis.* Photo: *D.A. Walker.*

The Boulder AAVA workshop

Greenland and Arctic Alaska are two of the relatively data-rich areas of the Arctic and were identified in Krakow as regional foci for prototype databases for the AVA. The Alaska Arctic Vegetation Archive (AAVA) Workshop convened in Boulder, CO, USA, 14-16 October 2013, to begin the creation of the Alaska prototype. The 21 participants included most of the living members of the Arctic Alaska vegetation science community, plus other participants with special expertise in vegetation databases from the University of North Carolina, Canada, the Czech Republic, the Netherlands, and Slovakia. Twenty extended abstracts are included in the proceedings from the meeting (Walker 2014).

The participants reported on the number and quality of available plot data and discussed the pros and cons of various database approaches. Prior to the meeting 2573 plots had been identified for inclusion in the AAVA. During the workshop another 2269 possible plots were identified.

The Alaska AVA is being developed with funding from the National Atmospheric and Space Administration (NASA) Arctic Boreal Vulnerability Experiment (ABoVE). ABoVE will cover large portions of the Arctic and Boreal region of western North America and produce a wide span of new knowledge needed to understand how climate change impacts ecosystems in the high northern latitude region, and how these changes produce feedbacks to the climate and are influencing ecosystem services (Kasischke *et al.* 2010). ABoVE is currently in a data-gathering phase to prepare for experimental ABoVE research. The Alaska plot database will be accessible through the web-portal called the Arctic Alaska Geo-ecological Atlas, which will contain descriptions, photos, maps, and other ancillary information related to the various data sets (Wirth *et al.* 2014). We anticipate a two-year timeline for the data gathering and archiving effort.

Consensus regarding the AVA

The geographic scope of the AVA is defined as the Arctic as portrayed by the Circumpolar Arctic Vegetation Map (CAVM Team 2003, Walker *et al.* 2005) plus the northern treeless portion of the Kola Peninsula and the boreal maritime tundra areas (Aleutian Islands, Iceland, Faro Islands, and Commodore Islands). The main interest is in high quality datasets that include complete species lists and cover estimates for vascular plants, mosses, and lichens from representative areas of homogeneous vegetation. Prior to the Krakow meeting 17,248 plots had been identified for potential inclusion in the database (Walker & Raynolds 2011). Talks presented at Krakow and Boulder revealed the following approximate numbers: Alaska, 4842 plots (Walker 2014); Canada, 3769 (MacKenzie 2014); Greenland 2563 (Bültmann & Daniëls, 2013); Iceland, about 450; Faroe Islands, 954 (Fosaa *et al.* 2013); Svalbard, 6281 (Nilsen & Thannheiser 2013); Russia, more than 6781 (Matveyeva personal communication, 2011; Ermokhina 2013) or about 25,600 total. Some of these plots may prove to be inappropriate for inclusion in the AVA, because they are either incomplete, unaccessible due to the proprietary nature of the data, still not digitized, or for various other reasons.

The AVA will utilize the program TURBOVEG, a comprehensive data management system for vegetation-plot data (Hennekens & Schaminee 2001) and a Pan-Arctic Species List (PASL, Raynolds *et al.* 2013) for initial data entry. The database will follow as closely as possible the procedures being developed for the European Vegetation Archive (EVA) (Chytrý *et al.* 2012). We will also strive for maximum compatibility with existing vegetation databases in the U.S. (VegBank, Peet *et al.* 2012) and Canada (VPro, MacKenzie & Klassen 2004). Vegetation metadata standards will follow those of the Global Index of Vegetation-plot Databases (GIVD, Dengler *et al.* 2011), those being developed for the NASA ABoVE project (http://above.nasa.govv), and the International Arctic Science Committee's (IASC) data protocols (Parsons *et al.* 2013). The archiving effort will be followed by application of the database to an Arctic vegetation classification using the Braun-Blanquet approach, a prodromus of described vegetation units, and a bibliography of key literature. We anticipate many other applications of the database to issues of biodiversity, species distribution modeling, and vegetation change modeling.

Acknowledgements

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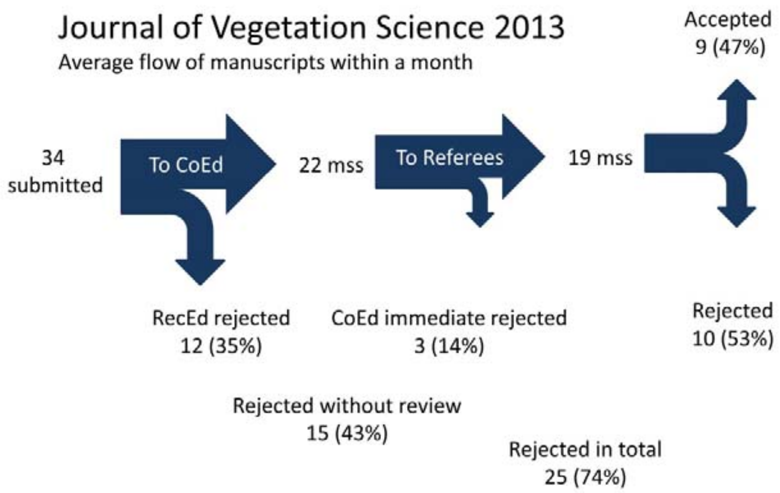
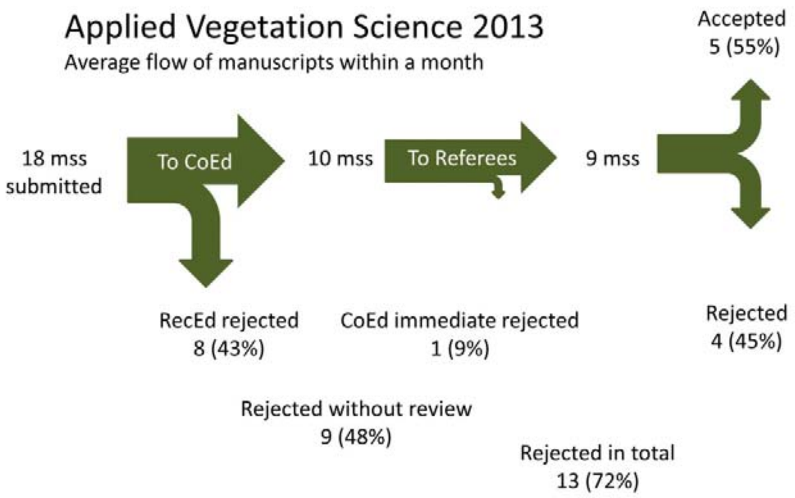
Manuscript acceptance rates in IAVS journals

Last year the *Journal of Vegetation Science* received 415 new manuscripts, and 221 were sent to the *Applied Vegetation Science*. This does not include resubmissions and revisions. We were able to print 116 and 68 papers, respectively. Thus, on average just *ca* 25% of manuscripts we initially receive can be accepted. If we exclude commissioned papers (Editorials, Commentaries), the average flow of manuscripts each month looks like given on the flow graphs. Each submitted manuscript is first screened by a Receiving Editor (RecEd) who decides if the topic and overall quality are suitable for our journals. In case of doubt, the RecEd is consulting another Chief Editor whether immediate rejection is appropriate. In few cases RecEd is recommending authors to change the target journal (from JVS to AVS, or *vice versa*). In few cases the Co-ordinating Editor (CoEd) is rejecting a manuscript without review, always after careful reading and detailed justification. About half of the manuscripts sent to review can be accepted after revision.





The current acceptance rate for both journals is producing exactly the number of accepted papers we are able to print. The very high competition for journal page space is requiring that we keep papers short. Electronic appendices can often be used more widely for material which is not absolutely essential in the printed version.

As you have noticed, the first issues of the *Journal of Vegetation Science* this year are thicker (300 pages instead of our ordinary 200) in order to get rid of the large backlog accumulated during previous years. IAVS will cover the extra costs for additional pages. After that, we should have a decent list of accepted papers for *ca* one issue, which is needed to buffer fluctuations in submission and allow the preparation of Commentaries. We work hard to keep our backlog small and print accepted papers within few months.

Meelis Pärtel
Chair of the Editors

Obituary: Professor Władysław Matuszkiewicz (1921-2013)

Prof. Władysław Matuszkiewicz died on 11 October 2013 and was buried in Milanówek, near Warsaw, where he had lived for the past 60 years. He was born in Lwów (then in Poland; now a Ukrainian city) into a family of teachers. As a young boy he was interested in botany to the point that while still in middle school he audited lectures with Prof. Stanisław Kulczyński at the Jan Kazimierz University in Lwów. The nature surrounding Lwów made a lasting impression on him: his lectures for students years later were always illustrated by examples of the vegetation of his childhood years. World War II broke out just as he was starting his studies and he spent those years participating in illegal, underground courses organized by the opposition conspiracy movement. He earned his master's degree through these channels in 1944, though it was not verified and confirmed until after the war in 1947 by the Department of Natural Sciences of the University and Polytechnic of Wroclaw. During the Nazi occupation he was employed at the Typhus Institute ("Institut für Fleckfieber und Virusforschung") headed by Prof. Rudolf Weigel. It was there that he met his future wife, Aniela Sadłowska, his partner in life and in academia. Events in post-war Europe forced him to leave Lwów to pursue his scholarly career at universities and other academic institutions, first in Wrocław, later in Lublin, then from 1953 in Warsaw at the University of Warsaw and the Polish Academy of Sciences. Prof. Matuszkiewicz quickly earned his successive degrees and was made professor at the age of 33 in 1954. He taught at the University of Warsaw for years as head of the Department of Phytosociology and Plant Ecology. He organized the University of Warsaw's Bialowieza Geobotanical Station in Białowieża, later headed by one of his students, Janusz B. Faliński. From 1980 until his retirement in 1991, Prof. Matuszkiewicz served as head of the Department of Biogeography at the Institute of Geography and Spatial Organization of the Polish Academy of Sciences.

Prof. Władysław Matuszkiewicz was an ambitious geobotanist whose main area of interest was phytosociological typology as formulated by the Zürich-Montpellier school, represented in Poland from the beginning by Professors Szafer, Kulczyński and Pawłowski. Prof. Matuszkiewicz's scholarly work was greatly influenced by Prof. Reinhold Tüxen, whom he first encountered in 1954 and with whom he then maintained close contacts despite the difficulties in communication posed by the "iron curtain" dividing Europe at the time.

Władysław Matuszkiewicz was particularly interested in forest communities and he devoted many publications to this topic. In creating the phytosociological typology of forests, he simultaneously laid the foundations for the typology of forests in Poland as well as their regionalization for use in forestry. The complete Polish plant communities were gathered in a compendium that went into numerous reprints entitled 'Przewodnik do oznaczania zbiorowisk roślinnych Polski' (A Guide for the Identification of Polish Plant Communities) with a geobotanical key that was accessible for the average reader. This work (first published in 1981, then reprinted in 2001) served for years as the basis for identifying plant communities and later Natura 2000 habitats in Poland. The typological diversity of plant communities was always grounded in a knowledge of ecological conditions, particularly that of the soil and climate. The geographic analysis of Polish vegetation was a synthetic summary of this approach.

Matuszkiewicz's interest in plant communities from a typological perspective as well as a spatial perspective resulted in the work "Mapa potencjalnej roślinności naturalnej Polski 1:300000" (A Map of the Potential Natural Vegetation of Poland 1:300000), for which he organized the team of contributing authors and headed the editorial board. The map was published thanks to the efforts of his son, Jan Marek Matuszkiewicz, following in his father's scholarly footsteps.

Władysław Matuszkiewicz was also one of the initiators and then later one of the members of the international committee of editors on a project to create a map of the vegetation of Europe. He was eager to promote the indicative role of vegetation, making practical use of the information contained in it as well as creating the foundation of a landscape analysis of the vegetation.

Prof. Matuszkiewicz authored numerous academic publications in the field of syntaxonomy and phytogeography which were particularly valuable due to his skill in stating precise formulations. In fact, Prof. Tüxen coined the phrase „klar wie bei Matuszkiewicz" „as precise as Matuszkiewicz."

His scholarly work earned him numerous state and academic awards. He was the first winner of the Reinhold Tüxen award granted by the city of Rinteln. He was an honorary member of IAVS as well as the Polish Botanical Association. His network of close friends included geobotanists from all over Europe.

Perhaps one of his greatest accomplishments thanks to years of dedicated scientific and academic work was the creation of his own "Warsaw" school of phytosociology and the numerous phytosociologists he educated to carry on the work. He directed a total of 25 doctoral students, many of whom went on to become professors continuing in the tradition of their Master, one of whom is the author of this obituary.

Anna Kozłowska

Forthcoming meetings

2014

8-12 May: 23rd Workshop of the IAVS Working Group *European Vegetation Survey*, Ljubljana, Slovenia (http://evs.zrc-sazu.si/)

5-15 June: 11th European Dry Grassland Meeting, Tula, Russia (http://www.edgg.org/edgg_meeting_2014.html)

3-8 August: 9th European Conference on Ecological Restoration, SER Europe, Oulu, Finland (http://chapter.ser.org/europe/upcoming-events/conferences-workshops/)

10-15 August: 99th Annual Meeting of the Ecological Society of America, Sacramento, California, USA
(With business meetings of the North American section of the IAVS and of the ESA vegetation section)
(http://esa.org/am/)

1-5 September: 57th Annual Symposium of the International Association for Vegetation Science, Perth, Australia (http://www.iavs2014.com/)

8-12 September: Ecological Society of Germany, Austria and Switzerland (GfÖ), Annual Meeting 2014, Hildesheim, Germany (http://www.gfoe-2014.de/)

9-12 December: Joint 2014 Annual Meeting British Ecological Society and Société Française d'Ecologie, Grand Palais, Lille, France (http://www.britishecologicalsociety.org/events/current_future_meetings/2014-annual-meeting/)

Iconic kwongan shrublands - the most species-rich temperate shrublands of the world at Mount Lesueur National Park, Australia

The IAVS Bulletin is an electronic newsletter of the International Association for Vegetation Science (IAVS, www.iavs.org), edited by the members of the Governing Board and the Administrative Officer Michael Lee (admin@iavs.org). Please visit http://www.iavs.org/MembershipRenew.aspx to become a member. If you have difficulty, please contact our Administrative Officer, Michael Lee.

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