



Forest of the Month: Wooded meadow in Estonia
See article by Keith Kirby

JULY-AUGUST 2011

INTRO

The UN International Year of Forests continues to throw up interesting reports and opportunities. If you'd like to keep track, an [online newspaper](#) has been created, filled with articles related to recent research and news stories. Another benefit of this year's designation has been the production of a number of landmark reports on the status of forests worldwide. One which may be of particular interest was recently published by Eurostat (the European statistical agency) on [forestry in the EU and the world](#), with a wealth of useful information on global patterns of forest extent and usage. For those based in the EU, it's also worth noting that the most recent set of calls under the [FP7 funding](#) programme contains quite a number of forest-related initiatives. Elsewhere, the Union of Concerned Scientists released a new report entitled 'The Root of the Problem – What's Driving Tropical Deforestation Today?' This is well worth reading through, and is available free through their [website](#).

The forthcoming [2013 INTECOL](#) congress, which will be hosted by the BES, has issued a call for symposium proposals, with a deadline of 30th November 2011. If you have ideas for something that could be run through the Forest Ecology Group then please get in contact so we can help develop a proposal.

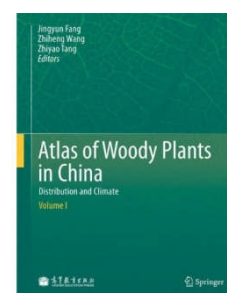
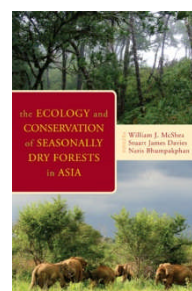
All the best,
Markus Eichhorn
University of Nottingham, UK
markus.eichhorn@nottingham.ac.uk

NEW PUBLICATIONS

The Ecology and Conservation of Seasonally Dry Tropical Forests in Asia
Eds: William J. McShea, Stuart J. Davies & Naris Bhumpakphan
Smithsonian Institution Scholarly Press / Rowman & Littlefield
<http://www.rowmanlittlefield.com/Catalog/Flyer2.shtml?SKU=1935623028>

Atlas of Woody Plants in China
Fang Jingyun, Wang Zhiheng, Tag Zhiyao
Springer / Higher Education Press
<http://www.springer.com/life+sciences/plant+sciences/book/978-3-642-15016-6>

Burning Issues: Sustainability and Management of Australia's Southern Forests
Mark Adams & Peter Attiwill
CSIRO Publishing
<http://www.publish.csiro.au/pid/6421.htm>



EMPLOYMENT OPPORTUNITIES

Dean of the School of Forest Resources and Environmental Science

Michigan Technological University invites applications and nominations for the position of Dean of the School of Forest Resources and Environmental Science.

The Dean is the chief academic and administrative officer for the School of Forest Resources and Environmental Science and reports directly to the Provost. The Dean is responsible for strategic planning, development, and administration of the School, as well as managing relationships with other University units and outside educational institutions, alumni, government, and the private sector. The Dean will be central in realizing the University's vision to grow as a premier technological research university of international stature, delivering education, new knowledge, and innovation for the needs of our world. The University is entering its fifth year of a strategic faculty hiring initiative, which added new faculty in interdisciplinary areas of importance for Michigan Tech. See <http://www.mtu.edu/sfhi> for more details.

In addition, Michigan Tech is an ADVANCE institution, one of a limited number of universities in receipt of NSF funds in support of our commitment to increase diversity and the participation and advancement of women in STEM.

Michigan Tech's School of Forest Resources and Environmental Science is one of the most productive forest research programs in the country. We currently employ 25 tenure-track faculty, 5 research faculty, 18 research professionals, and 19 administrative professionals and enrol 160 undergraduate and 70 graduate students. The School is particularly well known for its excellence in the fields of forestry, applied ecology, forest molecular genetics, and wildlife management. The Chronicle of Higher Education recently ranked the school first in Faculty Scholarly Productivity. The School's faculty members were also ranked No. 1 in the number of forestry journal citations by a study published in the Journal of Forestry.

Established in 1885, Michigan Tech is a nationally recognized research university and a leader in science and engineering education. Located in Houghton in the Upper Midwest in the scenic Keweenaw Peninsula, Michigan Tech offers a friendly, safe, and affordable living environment with excellent opportunities for year-round outdoor recreation.

To receive full consideration, candidates must demonstrate scholarly activity appropriate for a tenured appointment as full professor, with a sustained record of teaching, scholarship, university and community activity, and a demonstrated ability to

attract funding in one of the disciplines within the School. The successful candidate will be a proven leader with excellent communication and interpersonal skills and a commitment to diversity. Experience in strategic planning, fundraising, and budget management is desirable. For information about the position, please visit our web site at: <http://www.mtu.edu/forest/deansearch/>

Review of applications will commence on October 1st, 2011 and will continue until the position is filled. The anticipated start date for the position is June 1st 2012. Please submit nominations, inquiries, or application materials, including a cover letter and curriculum vitae to: <https://www.jobs.mtu.edu/postings/196>

or

Dean Search Committee School of Forest Resources and Environmental Science Michigan Technological University 1400 Townsend Drive Houghton, MI 49931-1200

Michigan Technological University is an Affirmative Action/Equal Opportunity Employer

UN-REDD Programme project positions

The Food and Agriculture Organization of the UN (FAO) and the UN Development Programme (UNDP) are seeking to fill several project positions with the UN-REDD Programme, ranging from young professionals to a senior position as Programme Coordinator (UN-REDD Country implementation). Check out the Vacancies page at www.un-redd.org for more details on the following positions:

Programme Coordinator (FAO) (UN-REDD Country Implementation). GRADE LEVEL: P-5. DUTY STATION: Rome.

Forestry Officer- REDD+ (FAO) GRADE LEVEL: P-3 (4 posts available). DUTY STATION: First 6-12 months in Rome; afterwards out posted to a Region or Country Programme.

Forestry Officer- REDD+ (FAO) GRADE LEVEL: P-2 (2 posts available). DUTY STATION: First 6-12 months in Rome; afterwards out posted to a Region or Country Programme.

Governance and Anti-Corruption Advisor for REDD+ (UNDP). GRADE LEVEL: National Consultant. DUTY STATION: Kinshasa.

Additional FAO vacancies (some in Rome, some field based) will be posted [on-line](#) within the next couple of days/weeks. If you're interested and fulfil the essential requirements, please apply.

Senior Scientist and Technical Advisor to Head of Research and Monitoring Department - Harapan Rainforest, Sumatra

Reference number: 1190711

(<http://www.rspb.org.uk/vacancies/>)

The post holder will be Senior Scientist and Technical Advisor to the Head of the Research and Conservation Department at Harapan Rainforest, working to protect and restore a large former logging concession in lowland Sumatra, Indonesia. The Research and Conservation Department has a team of staff to ensure that the impacts of forest restoration on forest biodiversity are monitored and well understood, and to provide scientific support to colleagues engaged in the carbon financing process. Particular skills and experience are required in tropical forest restoration. The research team that you will work with includes expertise in biodiversity survey and monitoring as well as forest conservation. You will also work closely with the Harapan forestry operations department to deliver restoration activities according to best practise, undertake research to address immediate needs and develop an ongoing research programme to contribute to the successful restoration of the site.

Salary: £30,000 to £35,000 pa

Hours: Full time

Contract: 3 years

Closing date: 12 August 2011

Interview date: 8 September 2011

Postdoctoral position: The International Forestry Resources and Institutions (IFRI) Network

The International Forestry Resources and Institutions (IFRI) Network, located at the University of Michigan's School of Natural Resources and Environment, seeks a postdoctoral fellow for a one-year appointment beginning Fall 2011. The Postdoctoral Fellow will work under the direct supervision of Professor Arun Agrawal who coordinates the IFRI network. The Fellow will conduct and support research for several existing projects on institutional and social dimensions of forest outcomes and climate adaptation, community forest governance, and land cover change. As necessary, the Fellow will also assist with the preparation of new grant proposals, coordination of IFRI field research, and organization of research workshops in national and international contexts. A combination of scholarly imagination and rigorous interdisciplinary empirical and analytical skills will provide applicants a competitive edge. Strong statistical training, experience working with complex social-ecological datasets, and some spatial analysis skills (GIS and Remote Sensing) are especially desirable. Qualified applicants may come from a range of fields, including Political Science, Public

Policy, Geography, Sociology, Economics, Ecology, and Environment programs.

To apply, please send a 1-page cover letter, names of two recommendation letter writers, and a copy of a recent publication (all as a single file with your full name in the filename) to Joan Wolf at ifri@umich.edu. The

initial appointment will be for a year, with the possibility of renewal for a second year contingent on satisfactory performance and final approval of funds. We will begin reviewing applications August 15, and will accept applications until September 1st or until the position is filled. For more information on the IFRI research program please visit:

<http://www.sitemaker.umich.edu/ifri/home>.

Postdoctoral position: Microbial ecology and biogeochemistry of tropical forests

University of Texas at Austin

The Hawkes lab is seeking a postdoctoral researcher to work on a NSF-funded project in tropical soil microbial ecology. The goal of the project is to understand belowground drivers of aboveground nutrient cycling and productivity in highly productive tropical forests.

We are looking for a highly motivated PhD with the demonstrated ability to carry out outstanding research in microbial ecology. The work will include characterization of soil microbial communities and their activities, with a focus on fungi. The successful candidate must have experience in molecular approaches to microbial community characterization (including 454 pyrosequencing and qPCR) and related skills in bioinformatics and phylogenetics. The postdoc will also be responsible for quantifying soil enzyme activity and fungal abundance, for which training can be provided if necessary. Training will also be available in biogeochemical approaches, depending on interest. The postdoc will have the opportunity to develop new, complementary projects and to participate in other related ongoing and new projects.

Field work will take place at La Selva Biological Station in Costa Rica, and the postdoc will be expected to lead field sampling trips to the site with Dr. Ann Russell (Iowa State University). For more information about the Hawkes and Russell labs, please visit:

<http://www.biosci.utexas.edu/ib/faculty/hawkes/lab/Default.htm>

http://www.nrem.iastate.edu/old/fac_staff/Russell.htm

Applicants should have a PhD in ecology, microbiology, chemistry, or a related field and demonstrated experience in molecular microbial ecology. The position requires an independent, organized, creative individual who is personable and enthusiastic about working in a collaborative group environment. The postdoc should be comfortable training and mentoring undergraduates and graduate students in methods related to the project.

Interested candidates should send a single pdf file containing the following to Dr. Christine Hawkes (chawkes@mail.utexas.edu): cover letter indicating interest in the project; curriculum vitae; list of three

references including names, email addresses, and telephone numbers; two representative publications.

Applications will be reviewed beginning July 20, 2011 and will be accepted until a suitable candidate is found. The position will be for one year, renewable up to three years based on performance. The University of Texas at Austin is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, colour, religion, sex, national origin, disability, age, citizenship status, Vietnam era or special disabled veteran's status, or sexual orientation.

GRADUATE OPPORTUNITIES

PhD: Consequence of natural disturbances on the design of the forest industry

Domain of study: Forest management - Landscape ecology - Strategic planning

Description of research: We are looking for a Ph.D. candidate to design a strategic plan formulation sensitive to the influence of timber price projections and to the sustainability of forest management, including fire risk. The study takes place in the boreal forest of Quebec and Ontario, Canada. This project fits within a larger collaborative research to provide the forest industry and policy makers with new advanced planning and decision support systems.

Profile of potential candidates:

- Education in forest sciences or biology preferred but not mandatory,
- Preference will be given to candidates demonstrating a strong potential in the use and analysis of quantitative data (mathematical programming).

The successful applicant will join a Canada-wide research network that offers many opportunities for interaction (<http://www.reseauvco.ca/en/home/>). Funds are available for two stays, one at the fire laboratory of David Martell (U. Toronto - <http://www.firelab.utoronto.ca/>) and one with Glen Armstrong (U. Alberta - <http://www.ualberta.ca/~gwa/>). The PhD position includes a full 3-yr scholarship and is expected to start in September 2011.

Study program: Doctorat en Sciences Forestières, Département des sciences du bois et de la forêt, Université Laval (<http://www.ulaval.ca>), Québec. Note that although the language of instruction at Université Laval is French, one's thesis may be written in English.

Interested candidates can send a CV, transcript of academics records and an introduction letter to:

Frédéric Raulier: frederic.raulier@sbf.ulaval.ca

PhD: Forest Ecosystem modelling in Idaho

The University of Idaho Department of Forest Ecology and Biogeoscience is seeking applicants for a PhD position in forest ecosystem process modelling. The ideal candidate for this position should have a strong interest in developing our understanding of the atmospheric, hydrologic, geospheric, or biological patterns and processes that drive ecological variation and the response of plants to climate change in the Rocky Mountain West. We want to determine how the processes affected by climatic shifts will scale up in mountainous ecosystems since the interactions and feedbacks that define mountainous ecosystems are not fully captured by point observations. Correspondingly, the complexities in mountainous systems are not captured in the research done on more simplified flat terrain where we often evaluate our models. Does climate change merely shift elevational transitions or create changes that can be absorbed in the natural adaptation and feedbacks within the system - or will we see catastrophic and irreversible phenomena? Such questions illustrate the complexity we confront in predicting climate change impacts in mountains and the need to evaluate estimates from process models before we can know whether we are getting accurate answers to fundamental questions for the right reasons. The student will work closely with UI faculty and U.S Forest Service scientists using newly developed high-resolution mountain air temperature and humidity data sets to examine the effects of terrain on climate, and apply that understanding and data to ecosystem models. There is some flexibility in choosing a research focus and a range of new data and applications are available.

Strong quantitative abilities and a background in quantitative computing (or a strong desire to develop skill in these areas) are required. Interested applicants should contact Dr. Kathleen Kavanagh at the University of Idaho (katyk@uidaho.edu). We are looking for someone that could start in Fall 2011 or Spring 2012.

Graduate studentships: Fine root dynamics of forest trees

Drs. Marek Krasowski, John Kershaw (Faculty of Forestry and Environmental Management, University of New Brunswick, Fredericton, N.B.) and Michael Lavigne (Natural Resources Canada, Atlantic Forestry Centre, Fredericton, N.B.) are seeking graduate students interested in fine root dynamics of forest trees or in silviculture, productivity, and regeneration of eastern trees in Acadian forests.

We are seeking a Masters-level student for a project in the dynamics of fine root biomass in balsam fir (*Abies balsamea*) and sugar maple (*Acer saccharum*). The project involves collecting, processing, and analyzing data from minirhizotrons to assess influence of factors such as stand age and silvicultural history on the production, mortality, standing crops, and turnover rates of fine roots. Longer-term data already collected from research sites will be also available.

We are also seeking a Masters or Ph.D. student interested in getting involved in a new project on silviculture, regeneration, and growth and yield of eastern hemlock stands in south western New Brunswick. The depth and breadth of the project will depend on the degree sought.

Financial assistance may be available for up to 3 years for a Masters student and up to 4 years for a doctoral student. Starting dates: September 2011 or January 2012. Interested persons please contact Dr. Marek Krasowski (marek@unb.ca) with copies to kershaw@unb.ca and mlavigne@nrcan.gc.ca.

COURSES

Advanced Field course in Ecology and Conservation (AFEC-X)

October 22 - December 3, 2011

Xishuangbanna Tropical Botanical Garden,
Yunnan, China

AFEC-X is an intensive course in field research methods designed for early career graduate students and researchers in Ecology and Conservation. This year, it will run for six weeks to provide students with a better opportunity to conduct research and participate in group projects. Course activities will be split between lectures and field exercises. With

Graduate studentship: Tropical forest ecology

School of Forest Resources and Conservation at the University of Florida.

The M.S. or Ph.D. research assistantship begins preferably in the fall 2011 or winter 2012, but possibly summer or fall 2012.

I study forest structure/dynamics, carbon cycling and tree species distributions from local to regional scales using a combination of field data, remote sensing and modelling. I am looking for a graduate student who is interested in one or more of these areas. My website

<http://www.sfrc.ufl.edu/faculty/Bohlman/index.htm>

1 provides more details on the types of projects in which I am involved.

The ideal candidate is highly motivated and self-directed; has a background and/or interest in ecology or forestry; has quantitative skills in math, statistics, GIS and/or remote sensing; demonstrated writing skills; has worked on and completed independent research project(s); can provide at least 2 excellent references if requested.

Qualifications: A bachelor's or master's degree in biology, ecology, environmental science and/or demonstrated interest and competence/experience in ecology, modelling or GIS/remote sensing. Please email (1) a resume/CV, with GRE scores listed if available and (2) a letter stating your interests, background, qualifications and long-term goals to Dr. Stephanie Bohlman (sbohlman@ufl.edu).

The assistantship will include (1) a tuition waiver, (2) an annual stipend of \$16,000 and (3) health insurance. UF offers an excellent across discipline support and intellectual community for students involved in ecology and conservation, especially focused in tropical regions.



guidance, participants will design and carry out research projects in groups. The statistical program R will be introduced and used for the data analysis throughout the course. The course concludes with a symposium, where students present results of group projects and compete for the AFEC best research award.

Where: Xishuangbanna Dai Autonomous Prefecture, Yunnan province, China.

Course Fee: US\$1500 (high-income countries), US\$500 (lower-income countries). Fee includes accommodation, food and local transportation during the course. Limited course fellowships are available for participants from lower-income countries.

For more information and registration visit <http://www.pfs-tropasia.org/courses/afec-x-china-2011/>

Distance-learning module in agroforestry

We are pleased to announce that we will run a distance learning module 'Agroforestry Systems' this autumn. The module runs from 1st September - 17th December 2011.

The teaching is all via guided reading handbook, using a wide range of key texts, book chapters, reports and journal articles, all with targeted study questions and clearly timetabled.

This module is designed to give students in-depth perspectives of the fascinating interface between forestry and agriculture. Spanning a range of natural and social science-based topics, this module utilises

key research papers from international journals and case studies from across the world to enhance the learning experience.

The module syllabus includes:

- The tree-crop interface
- The role of Agroforestry in:
 - managing and enhancing soil fertility
 - conserving soil and water
 - maintaining / enhancing microclimate
 - conserving biodiversity
 - livestock well-being and productivity
- Smallholder livelihoods, traditional knowledge and culture
- Agroforestry and Payment for Ecosystem Services

Up to 10 scholars from developing commonwealth countries will be studying this module and through online forums and discussions this module really will have an international focus. We will also be using the latest lecture capture technology to allow material delivered to full-time Agroforestry students in Bangor to be delivered online to further enhance the learning experience.

For further information please feel free to contact me by email or telephone.

Dr James Walmsley
 School of Environment, Natural Resources and Geography, Bangor University, UK
 Email: j.walmsley@bangor.ac.uk
 Tel: +44 (0)1248 382448
 Fax: +44 (0)1248 354997
www.bangor.ac.uk/senrgy//staff/walmsley.php.en
www.bangor.ac.uk/senrgy//courses/distancelearning/

CONFERENCE ANNOUNCEMENTS

Animals, Man and Treescapes

14th to 16th September, Sheffield Hallam University/

Special Offer for British Ecological Society members

Supported by BES's Forest Ecology Group, the conference begins on Wednesday afternoon after the BES annual conference has closed at the University of Sheffield. Following opening presentations by Professor Ian Rotherham and Professor Melvyn Jones there will be a field visit to the National Trust Longshaw Estate on the edge of the Peak District National Park where we will discuss and demonstrate several of the conference themes. In particular, we will explain the concept of the 'shadow woods' and relate this to ancient treescapes of grazing animals. Our speakers, including Professor Oliver Rackham, Dr Keith Kirby and Dr Frans Vera, will be joining us on the field visit. Since BES is sponsoring this visit, there are special rates for members.

This major international conference is looking at the interactions between grazing animals, humans and wooded landscapes. With our partners, the Ancient Tree Forum, IUFRO, BES, Society for Landscape Studies, and the Landscape Conservation Forum, we will be promoting landscape ecology conservation through local, national and international initiatives. It seeks to link to relevant community projects and educational outputs throughout the UK, across Europe and beyond. Other speakers will include Della Hooke, Ted Green, Jill Butler, Adrian Newton, Hans Baete, Naomi Sykes, Richard Gulliver, Tobias Pleininger, Martin Goulding and Matthias Rupp.

NUMBERS FOR THE FIELD VISIT ARE LIMITED AND ON A FIRST COME FIRST SERVED BASIS so please book early to avoid disappointment. Booking forms and further information about the event are on the

www.ukeconet.co.uk website. Offers of poster presentations or displays should be sent to Christine@hallamec.plus.com, telephone enquiries to 0114 2724227.

Exploring the Mega-fire Reality 2011

14-17th November, Florida State University

On behalf of the Conference Committee, we welcome you to 'Exploring the Mega-fire Reality'—the first conference of the international journal *Forest Ecology and Management*, and organized through our publishers Elsevier.

In many parts of the world both the area and intensity of wildland fire have increased alarmingly. It is not only that fires are increasing in number. It is rather that the nature of wildland fire is changing, and we see mega-fires of increasing size and intensity in many parts of the world including Siberia, Alaska, Canada, United States, and particularly in Asia and Australia.

In 2009, the "Black Saturday" mega-fire in Australia burned 450,000 ha, destroying over 2000 homes and killing 173 people. As we prepare this welcome, the Wallow Fire that started on May 29, 2011 in east-central Arizona has burned through 200,000 ha, and this largest fire in Arizona's historical record continue to grow. These mega-fires raged despite highest preparedness budgets for fire-fighting and fire suppression on record.

Knowledge and insights about mega-fires are developing around the world, and we hope that progress will be greatly enhanced by bringing together experts from a broad range of disciplines in forest ecology and management. Global warming, over-accumulation of fuels in fire-prone forests, and growth at the wildland-urban interface all suggest that the fire protection strategies we have used in the past may no longer serve us so well in the future.

We look forward to an exciting and productive conference.

Co-Chairs Peter Attiwill and Dan Binkley
The Conference Committee

A PDF poster is attached to this mailing

Conservation and management of forests for sustainable development

23-24 November, Leuven, Belgium

To mark the end of the UN International Year of Forests, the University of Leuven, the Flemish Agency for Nature and Forests, and partners, are organizing a free, international scientific conference, 'Conservation and management of forests for sustainable development: where science meets policy'. The conference will be held in Leuven, Belgium, on 23 and 24 November 2011. The conference opens with a full day in the field and a free conference dinner (!), and there is the opportunity to win a best poster award the next day, in the poster session. Registration is mandatory. Poster abstracts will be peer-reviewed.

Raf Aerts (Raf.Aerts@ees.kuleuven.be)

A PDF of the first circular is attached to this mailing.

Agroforestry meeting report

A report from last month's FWF Annual Meeting on 'Organic Agroforestry: Eco-Functional Intensification' is now available on-line from the FWF website www.agroforestry.ac.uk. This also contains the abstracts and presentations from the day. Many thanks to all the speakers, and also to Stephen and Lynn Briggs and Martin Wolfe for hosting the farm visits. Thanks also to David Pilbeam and Alan Sibbald for working on the report and making it available on-line.

Dr Jo Smith (jo.s@organicresearchcentre.com)

FORTHCOMING MEETINGS

14-16th September

Animals, Man and Treescapes

Sheffield Hallam University

Organiser: Prof. Ian Rotherham (I.D.Rotherham@shu.ac.uk)

See [website](#) for more information.

14-17th November

Exploring the Mega-fire reality 2011

Florida State University

Organisers: Peter Attiwill (attiwill@unimelb.edu.au) & Dan Binkley (dan@cnr.colostate.edu)

See [website](#) for more information.

23-24th November

Conservation and management of forests for sustainable development: where science meets policy

Leuven, Belgium Organiser: Dr Raf Aerts (Raf.Aerts@ees.kuleuven.be)

See [website](#) for more information.

FOREST OF THE MONTH

Wooded meadows

Keith Kirby, *Natural England*
(Keith.Kirby@naturalengland.org.uk)

George Peterken and I recently spent a week looking at wooded meadows in Estonia. These pose some interesting comparisons and contrasts to British wood-pastures and also to ideas about what are ‘woodland’ and what ‘grassland’ plants. British wood-pastures tend to be on relatively poor soils, with very short grazed floras and typically veteran trees, often pollarded.

Estonian wooded meadows tend to be on richer soils and hence a richer vascular plant flora and the trees are generally younger with hazel clumps as a typical component. The woody elements are often associated with small rocky places – these might provide safe regeneration niches for trees and shrubs, but more importantly the mowers would avoid them because the stones would damage their scythes.

Like many semi-natural habitats in Britain associated with former traditional agricultural systems wooded meadows in Estonia have been lost over large areas from intensification or through scrubbing up. Where however they have been maintained or restored they have however a fantastic flora for a British botanist – ‘ancient woodland’ plants such as *Paris quadrifolia* rub leaves with ‘grassland species’ such as *Sesleria caerulea* and *Schozonera humilis*. There is also the chance to see British rare plants in greater abundance

than here, notably *Cypripedium calceolus*. So we had a great visit and our grateful thanks go to our Estonian guides.



Lady slipper orchid, *Cypripedium calceolus*

Bulletin edited and formatted by Jake Snaddon (Jake.Snaddon@ox.ac.uk)