



Scientific Report

December 12th 2008

European Science Foundation

LESC/SCSS Exploratory Workshop EW07-028

Europe's Green Backbone – Post-socialist land-use change in the Carpathian Region (EuCaRe)

Berlin, Germany – October 08th - 10th 2008

Convener: Patrick Hostert

Table of Content

0 Executive Summary

1 Introduction

1.1 Scientific Background

1.2 The Participants

2 Scientific Content of the Event

2.1 Structure and Topics

2.2 Scientific Content of Sessions

2.2.1 Framework of the Workshop

2.2.2 Biodiversity research in the Carpathian Ecoregion

2.2.3 Monitoring of land change and land-use

2.2.4 Analyzing drivers of land system change

2.2.5 Future scenarios

2.2.6 Data collection and availability

3 Assessment of the Results and Contribution to the Future Direction of the Field

3.1 Synthesis of Round Tables

3.2 Discussion on research strategy and participant expectations

3.3 Project Strategy

Annexes

Annex 1 Final List of Participants

Annex 2 Statistical Information on the participants

Annex 3 Final Programme

0 Executive Summary

The EuCaRe workshop was held from 8th to 10th October 2008 at Humboldt-Universität zu Berlin, Germany under the auspices of the ESF “Life, Earth and Environmental Sciences” Standing Committee and the Standing Committee for Social Sciences. It focused on research in land system science and targeted at contributing to a better understanding of human-environmental systems in a currently understudied region of Eastern Europe – the Carpathian Mountains. The overarching goals were to define a research agenda for land system science in the Carpathians and to develop a basis for future collaborative research projects.

Advancing land system science in the Carpathians therefore requires a diverse and holistic approach, focusing on land-use and its drivers, biodiversity, and cultural dimensions alike. The EuCaRe workshop targeted an interdisciplinary research community spanning across land system science, remote sensing, spatial modeling, geography, landscape and forest ecology, and sustainability science. Furthermore, stakeholders representing the Carpathian and European perspective were invited to the workshop. Participants therefore represented the Carpathian region (Poland, Romania, Slovakia, Ukraine) as well as a broad spectrum of research institutions from the rest of Europe (Belgium, Denmark, Germany, Italy, Luxemburg, Sweden, Switzerland, The Netherlands).

EuCaRe was planned as a trans-disciplinary event – a major goal was to bring different disciplines in support of an integrated Land System Science approach into contact. The workshop was structured into six blocks of coherent scientific topics that were presented by experts in the respective field of research: (1) Land Change Science and the Carpathians, (2) biodiversity research in the Carpathian Ecoregion, (3) monitoring of land change and land-use, (4) analyzing drivers of land system change, (5) future scenarios, and (6) mandatory data resources. In the latter context, a metadata analysis on needed and available data sources is ongoing. The six sessions were followed by parallel round table discussions on three specific questions with high priority for the EuCaRe workshop: (1) What can land change scientists learn in the Carpathians? (2) What does an integrated land change science project in the Carpathians require? (3) What do stakeholders expect from an integrated land change science project in the Carpathians?

Based on the results from the round table discussions, the future directions for land use research in the Carpathian ecoregion were discussed. An important point in this context was that land-use is still affected by transition effects from the socialist to post-socialist regime, as well as from post-socialist to early European governance for most of the Carpathian countries. It is hence a unique situation that the Carpathian Ecoregion still offers substantial steering room in terms of land-use decisions and future priorities. Cross border comparisons

should be used as case studies to provide the necessary evidence for similarities and differences in different countries and from different land-use legacies. Similar insights can be expected from comparing protected areas, such as national parks or landscape sanctuaries, with their surroundings.

Summarizing, a collaborative research project on balancing ecosystem services in the Carpathians with a strong link to participatory stakeholder involvement would be welcomed by all participants. It is also targeted to establish a Marie-Curie funded Initial Training Network once calls for proposals are open. Part of the participants will develop a regional project in the framework of INTERREG. The European Environmental Agency (EEA) is interested in the Carpathians as a European hotspot for a forthcoming integrated assessment of mountain ecosystems. All participants expressed their deep interest in intensive and extended future research collaboration.

1 Introduction

The EuCaRe workshop was held from 8th to 10th October 2008 at Humboldt-Universität zu Berlin, Germany. From a thematic point of view, the workshop fell under the auspices of the ESF “Life, Earth and Environmental Sciences” Standing Committee (LESC) and the Standing Committee for Social Sciences (SCSS) alike. From a regional point of view, participants represented important Carpathian countries (Poland, Romania, Slovakia, Ukraine) as well as a broad spectrum of research institutions from the rest of Europe (Belgium, Denmark, Germany, Italy, Luxemburg, Sweden, Switzerland, The Netherlands) and the USA.

1.1 Scientific Background

The EuCaRe Workshop targeted at contributing to a better understanding of human-environmental systems in a currently understudied region of Eastern Europe – the Carpathian Mountains. The fall of the Iron Curtain brought about substantial changes in the region’s socio-economic and institutional structures. This triggered widespread land-use changes which in turn affected local livelihoods, biodiversity, and the provision of ecosystem services. Moreover, today’s land-use decisions are affected by global climate change, globalization, and the accession of almost all Carpathian countries to the European Union, and cannot be analyzed without considering land-use legacies from centuries of historic land-use. While this renders the Carpathians a complex land-use system, analyzing this system also has tremendous potential to give novel insights in human-environment relationships and on the drivers and outcomes of land-use change in a biodiversity hotspot. Advancing land system science in the Carpathians therefore requires a diverse and holistic approach, focusing on land-use and its drivers, biodiversity, and cultural dimensions alike.

1.2 The Participants

The EuCaRe workshop targeted an interdisciplinary research community spanning across land system science, remote sensing, spatial modeling, geography, landscape and forest ecology, and sustainability science. Furthermore, stakeholders representing the Carpathian and European perspective were invited to the workshop.

Three months before the actual workshop, we started compiling an online document, asking all participants to state their individual expectations towards the workshop. The result was multi-faceted, largely mirroring the wide spectrum of scientific disciplines involved (compare Annex 2). We can aggregate the overall number of about 80 individual statements on the participant’s expectations into three broad categories:

- *Closing scientific gaps and gaining scientific knowledge*: deepen our understanding of causes of land-use and land cover change (LUCC), specifically the impact of transformation processes; learning about land cover and land-use change impacts on biodiversity and ecosystem services; getting insight in methodological research (remote sensing, modeling); learning from cross-border studies
- *Networking*: getting new contacts & strengthen established ones for future collaboration; fostering stakeholder involvement at different levels (local dwellers to European perspective); gaining and sharing knowledge on existing research and available data sources; linking regional scientists with researchers focusing on Global Environmental Change
- *Initiating research projects*: drafting ideas for interdisciplinary and trans-boundary research projects; focus on land systems at different scales

The information given by the participants was extremely valuable. The participants' statements generally reflected the ideas of the initial outline of EuCaRe and an evaluation of the statements helped to re-evaluate and re-formulate our initial objectives for the workshop:

- to define the state-of-the-art in land system analyses in the Carpathians,
- to render the most pressing research questions, and
- to bridge the gap between different disciplines and stakeholders.

The overarching goals were

- to define a research agenda for land system science in the Carpathians and
- to build the basis for future collaborative research projects.

During the workshop, information from the statements was valuable to trigger discussions and to target questions, especially of interdisciplinary relevance.

2 Scientific Content of the Event

2.1 Structure and Topics

EuCaRe was planned as a trans-disciplinary event – a major goal was to bring different disciplines in support of an integrated Land System Science approach into contact. The workshop was hence structured into 6 blocks of coherent scientific topics that were presented by experts in the respective field of research. Time was managed to allow for ample discussions after each block of short presentations.

The first session built the framework of the workshop, focusing on Land Change Science in general (exemplified by the IHDP-IGBP sponsored Global Land Project) and in-depth information on the Carpathian Ecoregion. This session, on the one hand, clearly outlined the need for interaction between natural and social sciences to tackle the complex problems of land change in Eastern Europe. On the other hand, the regional perspective was also underpinned from both physical and human geography.

The session on biodiversity related research in Eastern Europe and the Carpathian Mountains mostly focused on the unique natural environment of the Carpathians, from Slovakia to Romania. Related questions were discussed with regard to different scales, from local over landscape to regional magnitude. At this point the inherent socio-ecological understanding of biodiversity in the context of Land Change Science was also underlined, supporting the idea of humans being an integral part of the underlying drivers of change while themselves being affected by this change.

The session on monitoring ecosystems consisted of a generic, methodological part and an applied part that focused on research results from the Carpathians. The state-of-the-art in remote sensing methods for monitoring was presented. Again, the issue of varying scales from landscape to regional level was discussed and requirements for and interaction of methods for multiscale analyses were mentioned. During the applied component of the session, lessons learned from case studies that targeted different time scales of land change science were presented. These included recent cross-border studies as well as historic analyses reaching back to recent landscapes and processes triggered in times of the Austro-Hungarian Empire.

The analysis of drivers of change started with a conceptual framework on what is needed to adequately understand why and where land change occurs and expanded on what can be principally learned from related studies. The session then focused on the particularities of land change in Eastern Europe in general and in the Carpathian region in particular. It closed with elaborating the effects of climate change on land-use and how these may finally relate to biodiversity.

The fifth session was termed “Future scenarios” and had a focus on integrated modeling approaches. Aspects of scale and differences between ecological and social system modeling were covered. Moreover, models and their usefulness per se as well as the linkage between land-use models and ecosystem services were discussed.

Finally, the session on data and their availability was introduced by an overview on current research activities and the Carpathian/European scientific community in the relevant fields followed by a short statement on data sources covering the Carpathian region. It then became an interactive session, dominated by drafting a scheme on how to characterize data needs and data availability across different countries and different scales.

The six sessions were followed by parallel round table discussions on three specific topics with high priority for the EuCaRe workshop (see section 3.1). Based on short reports on results from each round table, a final plenary discussion was held. Within this discussion participants took the opportunity to formulate their individual ideas and link those to results from roundtable discussions and to the main outcomes from the six topical sessions. The workshop ended with an outlook on common research interests, a strategy for further exchange and ideas on potential project initiatives.

2.2 Scientific Content of Sessions

2.2.1 Framework of the Workshop

As a start for the framework session, Anette Reenberg (University of Copenhagen, DK) gave an overview on the Global Land Project (GLP). The GLP presentation provided an overarching framework for research priorities on the coupled human-environment terrestrial system. It also served as a conceptual outline for the workshop from the land system science perspective. Anette first elaborated on the three major pillars of GLP: Dynamics of Land Systems, Consequences of Land System Change, and Integrating Analysis and Modelling for Land Sustainability. The concept of sustainability and the idea of a critical decision space were introduced, as well as land-use and management were described as a way to conceptualize links between social and ecological sub-systems against the background of Earth System Sciences.

This general introduction to land system science was followed by background information on the Carpathian ecoregion (CE) presented by Ivan Kruglov and Marine Elbakidze (both University of Lviv, UA). The CE, also called the green backbone of Europe, stretches like an arc across 8 countries (6 EU-members) in the central and eastern part of Europe covering an area of about 213.000 km². With more than 50%, Romania comprises the largest part of the ecoregion. Altitudes range from below 1000 m up to more than 2000 m with the

Gerlachovsky peak (2,655 m) in Slovakia as the highest elevation. The CE contains vast areas of forest in close-to-nature state and is habitat for many threatened species such as the brown bear, wolf or lynx. Altitudinal ecosystems reach from oak forests to alpine communities and a dominance of beech-fir forests can be found. Concerning the distribution of altitudinal belts, the temperate forest domain is the most dominant. Ivan pointed out the strong spatial heterogeneity of the CE, underlining this with his delineation of smaller ecoregions for the Ukrainian Carpathians. When studying land-use and land-cover change, the underlying type of natural geo-ecosystem or ecoregion should always be considered and put into context.

From a socio-economic perspective, seven main groups of land-users exist in the Ukrainian Carpathians. First, the state forest enterprises, which use about 25% of the forested land. These enterprises are defined as permanent forest users with several rights and obligations. Second, the local communities using and changing land in different ways. Main influencing trends here are depopulation and abandonment, tourism development and changes of land property structures. There is a general transition to higher living standards and a loss of cultural diversity. Nature protected areas are the third group of land-users. In the Ukrainian Carpathians, one strict nature reserve, six national nature parks and two biosphere reserves exist. A program is enforced to develop an ecological network and increase protected areas up to 10%. Tourism enterprises, as the fourth group, enhance changes in land property structures and the chaotic (unregulated) development of rural landscapes. Transport, private agricultural enterprises and hydro-power stations are the other land-users. Understanding the different needs and motives of land-users as well as the underlying legislative framework is of major importance.

Following this background information on the CE, the Carpathian Ecoregion Initiative (CERI) was introduced by Anna Guttova (CERI, SK). CERI represents about 45 non-governmental organizations, which collaborate on – mostly biodiversity-related – research in the Carpathians. Important cornerstones are the Carpathian Biodiversity Information System that combines aspects of the European Natura 2000 network with the Carpathian-specific background. CERI is engaged in coordinating activities among the Carpathian Protected Area Network and is involved in the Carpathian Ecological Network (funded by BBI-Matra and DBU until 2010). After a first assessment on the Status of the Carpathians in 2001, CERI has committed itself to provide current pressure maps for the Carpathians and to steer the process of identifying potential conservation landscapes.

The framework session ended with a presentation by Jan-Erik Petersen from the European Environmental Agency (EEA, DK) who explained the “European perspective” in the context of the workshop. The European Environmental Agency (EEA) is interested in the different

impact of sectoral drivers on the environment of an enlarged Europe. This includes, among others, the influence of the Common Agricultural Policy (CAP) in general and bio-energy policies in particular. The needed knowledge base, tools, and stakeholder outreach are assessed against the background of the Drivers-Pressure-State-Impact-Response (DPSIR) approach. The Carpathians provide a unique case for studying multifunctional landscapes, because an integral economic valuation of environmental change is not yet available and Eastern Europe in general is considered an understudied region. EEA envisions the Carpathians as a representative mountain ecosystem of great methodological value, specifically due to the policy framework and related changes in Eastern Europe. The Carpathian Mountains may hence become a focus region in EEA's EuReCa framework, targeting a deeper understanding on the interrelations between European policies, ecosystem services, and their impacts on European society.

2.2.2 Biodiversity

The Biodiversity session was introduced by Per Angelstam (Swedish University of Agricultural Science, SE) with an overview of biodiversity in Eastern European Mountains. Eastern Europe has not yet crossed important habitat thresholds mandatory to support the sustainable conservation of many European flagship species. However, largely unknown and non-linear responses to habitat fragmentation are threatening ecosystems and their services across the region. Moreover, the time lag in land-use change effects on species and biodiversity leads to a systematic underestimation of threats and extinction rates. Research strategies have to be multifold, including establishing a knowledge base on species presence, e.g. in protected areas, or establishing viable populations via functional habitat networks. Accordingly, it is suggested to understand the Carpathians as a set of "multi-functional landscape laboratories", i.e. based on management units, research units, or teaching units.

Lubos Halada (Slovakian Academy of Science, SK) followed with a presentation on biodiversity in the CE. Mountain Ecosystems provide habitat to unique species and sustain high levels of biodiversity. Moreover, they are most sensitive to global climate change, serve as early-warning indicators, and accordingly climate change threats to biodiversity are more pronounced in mountainous regions. The Carpathians are Europe's largest mountain region and also its most dynamic, with post-socialist developments meeting late EU accession for most of the Carpathian countries. As such, European CAP has considerably influenced the region, with e.g. increased managed grasslands after the CAP changes in 2004. Other prominent processes include eutrophication and acidification of soils.

The session ended with an overview on forest ecosystems by Mihai Zotta (Romsilva, Romania). The Carpathians, particularly in Romania, include about 200,000 ha of almost

pristine forest ecosystems, which are partly not protected. Professional management structures are still to be established in many respects. Among others, habitat mapping in Romania is largely missing, land owners are not properly compensated for nature conservation efforts and generally effective management guidelines are in practice since 2004, only. From the conservationist's point of view, landscape fragmentation seems to be the major obstacle in the Carpathians. It can be hoped that adding another 300,000 ha of Natura 2000 sites to the network of Carpathian Protected Areas will help to mitigate related problems.

2.2.3 Monitoring

Achim Röder (University of Trier, DE) and Thomas Udelhoven (Centre Gabriel Lippmann, LU) explained the landscape and regional perspective for monitoring approaches in the Carpathians, respectively. Remote sensing data comprise highly relevant characteristics for a regional monitoring approach: they are consistent and synoptic, observations are acquired repetitive and resemble an objective observation and they are comparably affordable. Monitoring approaches based on satellite imagery today can choose from a variety of different earth observation programs all with different characteristics regarding their spatial-, spectral-, temporal- and radiometric resolution. Data types and analysis procedures should be chosen regarding the addressees of the derived information.

The Assessment of land transformations and modifications requires different data processing techniques and analysis procedures which should be selected in a target specific manner. Adequate auxiliary and reference information are crucial in order to derive meaningful information. The initiation of a long-term and retrospective resource inventory is an ideal starting point for a joint pan-Carpathian monitoring approach.

Monitoring land-use change in the CE with high temporal remote sensing data inaugurates an information level that is not accessible from systems providing higher spatial and radiometric resolutions. AVHRR data are well suited to map and analyze regional land system changes for the whole Carpathian region: time series can potentially be extended from the 1980s to today, data is available free of charge, global data products are available (e.g. global vegetation index at 8km) and products with spatial resolution of 1 km² is ideal for such a large study region (e.g. MEDOKADS). The temporal resolution of 1 day globally enables thorough time series analysis. Generally time series analysis is a powerful tool, especially when investigating areas of regional extent. Yet there are also problems associated with such analyses. Application-related problems such as trends, seasonal patterns and noise have to be removed. The validation of time series derived information is problematic: available statistics are in most cases not suited for validation of trend patterns. A solution can be, to link coarse scale with the fine scale data thereby gaining an

interpretation. A proper validation is not possible, as results on coarse scales are related to processes on the same scale and it is not possible to link results on the coarse scale to processes on the fine scale.

Jacek Kozak (Jagiellonian University, Krakow, PL) introduced forest transition in Poland from the historic perspective. Historic land-use changes determine today's land-use configuration in the Carpathians to a large degree. The common Austro-Hungarian history led to similar historic starting points across the entire region – an important aspect when studying the influence of today's socio-economic and political framework on land-use changes. It is generally agreed that forest decrease reached its maximum around the 1930ies in the Carpathians, while the overall tendency shifted to increasing forest cover, on average. The most important drivers of land-use and land cover change in the Carpathians today relate to population dynamics, labour market and the respective political framework in each country. Open questions are how decreasing population and out-migration will influence future forest cover and how agricultural policies will steer the interplay of forest and agricultural landscapes. It is, for example, obvious that mountain pastures increasingly overgrow with shrublands and forests, while urban expansion is increasing.

This historic perspective was followed by examples for cross-border comparisons of land-use change by Tobias Kümmerle (University of Wisconsin, US). Cross-border comparisons reveal the influence of socio-economic boundary conditions and governance on land-use changes in the Carpathians. Different forest logging regimes related to different forest codes and ownership structures determine major disparities in different Carpathian countries. This applies similarly to agricultural regimes, where today's differences between CAP-influenced members of the European Union and Ukraine are striking. With potentially 15-20% of previously arable land being extensified or abandoned, there is an enormous potential to influence future land management decisions in the agricultural sector with great impact on ecosystem services and biodiversity. While land-use changes can be monitored with good accuracies from remote sensing today, methods to better quantify land-use modifications, like extensification or intensification, are largely lacking. Another challenge is to better integrate agro-economic modeling with remote sensing to better understand how the Carpathian region will develop in the future.

2.2.4 Analyzing drivers of land system change

The session started with an overview on strategies and approaches for analyzing drivers of land system change by Eric Lambin (University of Louvain, BE). The political and societal changes in the countries of the Carpathian Mountains create a natural experiment when transboundary situations are compared. While proximate causes can be dealt with in a straightforward manner with spatiotemporal methods, understanding underlying causes asks

for understanding relevant agents. Ecological and economic schools try gaining in-depth knowledge on the agent-level: It is therefore needed to couple models on ecosystem goods and services and models reproducing macro-economical feedbacks on land-use. A participatory approach based on local communities seems indispensable. However, a careful design is needed to really exploit the situation, i.e. to generalize from case studies to universal knowledge. Concentrating on those variables needed for solving a chosen research question is essential, while all other boundary conditions need to be kept invariable.

Daniel Müller (IAMO, DE) followed with a presentation on spatial and temporal processes of land change in Eastern Europe and the Carpathians. A large spatial and temporal variability heterogeneity exist in this region, among and within countries. Case studies are therefore needed to derive a more complete understanding of the relevant patterns, processes, and causes of land change. Changing income opportunities shape land-use and warrant particular research emphasis as driver of land change. Moreover, integrated, multi-level analyses are needed that provide insights into spatio-temporal processes at different spatial scales. Open questions include the linkages between demographic development and land-use, the relationships between input intensity, land-use, and land cover, the investigation of permanent versus short-term abandonment, as well as the measurement and delineation of livestock densities that are connected to pasture and meadow dynamics. These questions call for the combination of broad-scale approaches with field-based investigations that capture on-the-ground land-use dynamics and farmers' responses to changes in underlying drivers.

Wolfgang Cramer (PIK, DE) extended the view on the Carpathians by the climate perspective. Land-use and climate change are the most important drivers of changes in biodiversity. At the same time, it is important to identify the anthropogenic component in climate change scenarios to properly understand how humanity can influence future changes. This is only possible through numerical modeling. Changes in ecosystem service provision (e.g. carbon sequestration potential) and sustainable biodiversity (e.g. influence on breeding bird communities) then need to be valued against the background of the respective ecosystem's adaptive capacity to derive vulnerability maps. The Lund-Potsdam-Jena (LPJ) model is a coupled agricultural and hydrological, process-based model that allows combining land-use and climate change scenarios to, for example, simulate agricultural output. Opportunities of mitigation and adaptation can only be developed based on such scenarios.

2.2.5 Future scenarios

The land-use perspective by means of integrated modeling and future scenarios was given by Jörg Priess (CESR, DE) and Peter Verburg (Wageningen University, NL), respectively. Integrated modeling is one way to deepen our understanding on drivers of land-use change.

While scientists are rather successful in modeling social and ecological systems today, linking both is still a challenge. Rule-based or regression models are capable of simulating changes on global (e.g. LandShift) as well as on regional scale (e.g. CLUE, SITE). However, large and heterogeneous regions like the Carpathians, spanning across several countries, are not easy to capture as a whole. It was argued that we need more knowledge on the variety of dominant feedbacks between land-system components in the various sub-regions of the Carpathians, which would enable researchers to better adapt and parameterize model-based approaches to regionally important drivers and processes. Therefore, using case studies with integrated land-use modeling at the regional scale will generate new insights into the coupled land system. Showing examples from different case studies, the importance to include both globally and regionally important drivers and simulate crucial feedbacks of the coupled socio-environmental system, was underlined. Concerning the case study design, the heterogeneity of the Carpathians makes it impossible to incorporate the whole region into a single modeling approach e.g. from a data point of view. However, based on expert knowledge, it might rather be useful to focus on the most urgent questions within individual sub-regions.

Models are not the only way to achieve that goal. However, they provide tools for structuring information, testing hypotheses, evaluate narrative approaches, or they might provide the basis for decision support systems. Ultimately, model choice has to be driven by processes, scale and feedback loops across scales. While GTAP and IMAGE are models used for integrated assessments at continental up to the global scale, tools such as CLUE and SITE are suitable options to assess land-use changes at landscape to regional scales. This can be the basis for appraising ecosystem services in the face of land-use changes. However, we should bear in mind that land-use may change without the actual land cover changing e.g. considering the processes of intensifying and extensifying land-use, which are currently occurring simultaneously in the Carpathians. Rather, land cover change can be a cause for, as well as a constraint or consequence of land-use change.

2.2.6 Data collection and availability

On behalf of Marek Baranowski (UNEP-GRID, PL), Jacek Kozak presented a summary on the collection and availability of spatial data for the Carpathians. It is an important constraint for modeling approaches that the non-EU-members Ukraine and Serbia do not provide the same data base (e.g. concerning Natura 2000 or INSPIRE-conform data sets) as the rest of the Carpathian countries. Nevertheless historic cadastre maps from Austro-Hungarian times are generally available since the mid-19th century in 1:2880 scales. Provision of such maps is diverse, as such data is available in scanned raster format in Czech Republic, but on paper only in Poland, for example. The most extensive collection of spatially explicit information is

collected in the Carpathians Environment Outlook (KEO). About 90 different environmental indicators in maps between 1:200,000 and 1:1mio scales are collected according to ISO 19100 and INSPIRE standards. As information on data availability and accessibility is not entirely transparent, it is necessary to run a data survey – which was kicked-off in the following session and should be supported by a post-workshop survey.

This was followed by an interactive session by Marc Zebisch (EurAC, IT) on data collection and availability that partly based on the outcomes of the Science for the Carpathians (S4C) networking workshop held in Krakow, PL in May 2008. The Science for the Carpathians (S4C) initiative, as introduced by Astrid Bjørnsen (Mountain Research Initiative; CH/A), is a new and quickly developing network with an interest in developing Carpathian mountain science. It was initiated by a small group of scientists and stakeholders at the Forum Alpinum 2007 in Engelberg, Switzerland, and a consecutive meeting in Bolzano, IT, in October 2007. The idea of a science network in the Carpathians similar to the one existing in the Alps was supported by the secretariat of the Carpathian Convention and the International Scientific Committee on Research in the Alps. In early 2008, S4C joined with the Mountain Research Initiative (MRI) and MRI's Global Change and Mountain Regions (GLOCHAMORE) Research Strategy served as a starting point for a research strategy. MRI established an initial database of scientists who might have an interest in shaping future research activities in the region (the "Carpathian List", see Weblinks). Together with the S4C partners, the MRI maintains and expands the S4C network and provides a communication platform among researchers. In addition the MRI lobbies for the long-term ideological and financial support of the Carpathian governments and of the Science Academies for this emerging network. One expected product from the S4C initiative could be the "Forum Carpaticum" (similar to the Forum Alpinum, see Weblinks), a thematic symposium for Carpathian scientists and stakeholders occurring every other year. The first Forum Carpaticum is tentatively scheduled for fall 2010.

In May 2008, the Institute of Geography and Spatial Management at Jagiellonian University, Krakow, PL, organized a launching workshop together with partners that was addressing stakeholders from the Carpathian region. One outcome of the workshop was an overview of existing and desired scientific data products for the Carpathian ecoregion. Linking in on these results, the EuCaRe participants created a "data availability table" (fig. 1). It is structured to include needed data on the one hand and existing data on the other hand. It will therefore allow assessing which gaps exist and how related problems, e.g. in terms of modeling, can be approached strategically. As the limited time during the workshop did not allow completing the table, workshop participants include information at the time of reporting.

Land-cover	Biodiversity & Ecology	Hydrology & Terrain	Economy / Social / Demography
1) Maps & Products: <ul style="list-style-type: none"> •Corine (90,00,06) •National Atlas, Landscape Ecology Slovakia •JRC forest mask 2) Historic Maps 3) Raw Data: <ul style="list-style-type: none"> ▪NOAA / AVHRR ▪MODIS ▪LANDSAT MSS / TM 4) In-situ data	-CERI -Natura 2000 -LTER -ICP FOREST -ICAS (Forest, Ecosystems and Habitats)	1) Soil & geology 2) Hydrology <ul style="list-style-type: none"> ▪ River Catchment Database, CCM/ERC 3) Terrain <ul style="list-style-type: none"> ▪ SRTM 4) Climate <ul style="list-style-type: none"> ▪ National weather services ▪ CLM scenarios ▪ CRU 	<ul style="list-style-type: none"> •PL - National census data •UA - National census data •FAO •EUROSTATS •KEO storylines •crop prices/subsidies •Land use •Land use plans •NUTS3 & below •biofuel status and demand •mix of social & economic drivers •ready to go PhD theses

Fig. 1: Available data products for land system research in the Carpathians. Based on this structure an interactive collection of available data is still ongoing among participants.

3 Assessment of the Results and Contribution to the Future Direction of the Field

3.1 Synthesis of Round Tables

Roundtable 1: What can land change scientists learn in the Carpathians? (M. Elkabidze, L. Halada, J. Kozak, T. Kuemmerle, A. Reenberg, A. Röder, S. van der Linden)

The group translated the question into: What would be the main ‘motivation’ in a Carpathian-focused, land-use centered research project? The first question that followed was: Is the Carpathian Ecoregion unique? Regarding the direction of change, it is not very different from other mountain regions in the long term. Focusing on more recent processes, however, the changes in political boundary conditions are unique. These rapid changes are region specific and an obvious opportunity to investigate the consequences of rapid, socio-economic shocks on land system changes. The Carpathians are furthermore an economically marginal area in Europe – yet, to a different extent in different Carpathian countries.

Next, potential perspectives on the main questions were discussed. Should a sustainability point of view, a governance point of view, or a methodological point of view (a region with a non-consistent database) be a focus of research? Should a targeted research project rather

be an academic exercise or an applied effort targeting stakeholders and decision makers at different levels? Gaining generic insights is another important motivation, i.e. to study path dependencies in a setting with high frequency societal changes (environmental history) and region-specific pathways of change. It is important to note in this context, that there is still room for maneuvering towards a sustainable land-use strategy in the Carpathians due to its dynamic and ongoing re-structuring. This allows for great opportunities with a scope for planning sustainable land systems.

Regarding recent changes in governance, it would be interesting to study the expected impact of the CAP. Several possible perspectives or objectives were proposed during the discussion, e.g.: to obtain new insights in diversity of land-use changes within the same land cover types; to create a well documented baseline as a point of departure for relating changes to socio-economic conditions or ecosystem services; to identify mismatches between local priorities and international expectations/environmental goals; to develop scenarios for decision makers; to provide insights to policy makers about 'getting the spatial units right' (including cross boundary approaches).

Roundtable 2: What does an integrated land change science project in the Carpathians require? (P. Hostert, E. Lambin, D. Müller, J. Priess, T. Udelhoven, P. Verburg, K. Vohland on behalf of W. Cramer)

The goal of this discussion group was to conceive a project with a high chance of being funded. Regarding the main research question, two broad objectives were defined in the beginning. Firstly, cultural landscapes and related migration patterns, local livelihoods, as well as impacts of land abandonment and land fragmentation on livelihoods. This includes all issues related to understanding shifts occurring in livelihoods and their sustainability. The region experiences fast changes and it is important to relate relevant drivers and processes with their social and ecological impact. To understand all facets, a multiple scale approach including feedbacks across scales is mandatory. Secondly, identifying trade-offs between changes of livelihoods against the background of ecosystem services seems important. A conceptual question is underlying these two research foci. To which extent are related changes dominated by internal socioeconomic dynamics and to which extent by external drivers (e.g. EU-policies)?

After defining these main objectives, a precursor study design was delineated. In this process, five typical pathways of change in livelihoods were identified: 1. migration (national or international, individuals or households) with impact on land-use and land abandonment; 2. diversification of agricultural activities; 3. land-use intensification; 4. large-scale cooperative farming; 5. forestry activities (e.g. logging, bioenergy). For each pathway, the

main drivers, involved agents, influences of local settings as well as EU-policies, and land-use legacies have to be identified. These factors build the basis for modeling the impact on social and ecological systems depending on the 5 trajectories.

Data collection and analysis were discussed in particular. At first, a rough regional survey based on indicators concerning the identified pathways should be conducted to understand the required size and sampling strategy. Remote sensing derived land cover and land-use change shall serve as a signature of these pathways along with economic census data. From these spatially explicit results, representative case studies will be selected. It is important to choose cases with multiple pathways, ensuring the possibility to vary all potential decisions in a model based approach. Cases should cover the majority of the Carpathian countries, depending on practical constraints (e.g. data availability). Once representative cases have been selected, detailed socioeconomic surveys and data collection needs to be carried out based on a standardized protocol to ensure comparability. Results will be upscaled from e.g. household to regional level with intermediate scales bridging the gaps. Vectors and compositions of different pathways can subsequently be analyzed. Once different pathways and their influences are properly understood, implied trade-offs considering most important ecosystem functions and services can be derived. An important key point here is that different services are provided at different levels. As stated earlier concerning the broad objectives, it is important to consider a multi-scale/level approach.

Roundtable 3: What do stakeholders expect from an integrated land change science project in the Carpathians? (P. Angelstam, A. Björnsen, A. Guttova, I. Kruglov, J.-E. Petersen, M. Zebisch, M. Zotta)

The discussion was generally based on a more regional – Pan-Carpathian point of view with a strong focus on the ‘Carpathian convention community’. Basis for the discussion was furthermore the idea of a strong involvement of stakeholders and the use of an action oriented approach. Mostly discussed were the potential interests of local stakeholders and dwellers. Important actors include the public sector, institutions and academic facilities, the economic sector as well as civil society (e.g. NGO’s, hunting or farming representatives). Further important actors are policy makers operating at a national level that are responsible for implementing environmental or sectoral policies. They will be interested in spatial planning and development opportunities for change scenarios and trajectories.

These different actors may have different interests and contradictory views. It is hence important to foster the common understanding of interactions between the idea of ecological networks and land-use change, and the possibilities of combining both. Contradictions also exist regarding biodiversity conservation. For some stakeholders it will be perceived as an

obstacle, for others as an opportunity. Views were varying when defining the most important stakeholders. It was first focused on land-use in a sense of farming and later on forests and changes in forests (e.g. bioenergy). The tourism sector was regarded as more peripheral when generic land-use is considered.

Finally, the focus shifted towards EU level stakeholders and those outside the Carpathians. Three different groups were assessed at this level: First, the perspective of the European Commission (implementation of policies, Natura2000, bioenergy) with more operational issues translated into policy design and allocation of funding (structural, CAP). Second, the European research community with an interest to invest into Carpathian focused research. This community may be looking for partners and data in the region, bringing resources, expertise, funding, and ideas with them. Third, the European Environmental Agency with an interest in developing concepts of ecosystem services and how they can be measured. It was stated that the Carpathian Ecoregion would be an excellent example with high potential to serve as a framework for other dynamically changing regions.

3.2 Discussion on research strategy and expectations

As stated in the outline, the EuCaRe Workshop targeted at contributing to a better understanding of human-environmental systems in the Carpathian Mountains. One reasoning for a focus on the Carpathians are obvious knowledge gaps concerning land-use and land cover changes and related effects on ecosystem goods and services. Advancing land system science in the Carpathians therefore requires a trans-disciplinary or even better interdisciplinary approach, focusing on land-use, its drivers, and effects, including biodiversity, environmental and cultural dimensions alike.

The following section summarizes the most important points from all participants during the discussion phase. It comprises general statements, comments to the agenda and round table discussions, and also subjective remarks intending to reflect the diverse scientific perspectives that made this workshop a truly interdisciplinary one.

From an ecosystem perspective, the Carpathian ecoregion is relatively homogeneous, while political backgrounds are diverse and the level of marginality varies between and within countries. This offers great opportunities to develop smart analysis approaches. However, inconsistent or incomplete data availability may be a limiting factor.

An important point is that land-use is still affected by transition effects from the socialist to post-socialist regime, as well as from post-socialist to early European governance for most of the Carpathian countries. It is hence a unique situation that the Carpathian Ecoregion still offers substantial steering room in terms of land-use decisions and future priorities. Cross

border comparisons should be used as case studies to provide the necessary evidence for similarities and differences in different countries and from different land-use legacies. Similar insights can be expected from comparing protected areas, such as national parks or landscape sanctuaries, with their surroundings.

Romania will play an important role in the whole concept, because of its high share of the Carpathian Ecoregion, its large stake in forest and agricultural ecosystems in the Carpathians, and its rich cultural heritage. Ukraine is important because of its status as non-European Union country, providing a baseline for comparing effects of different governance schemes and post-socialist development. Also, Ukraine comprises a high share of old-growth forest ecosystems – an important factor when it comes to valuating carbon sequestration potential. However, it appears that the highest amount of data needed for most modeling approaches is momentarily available in Slovakia and Poland. It is hoped that the ongoing data survey can solve the question on what is available where in which quality.

It was also mentioned in this context that it is obligatory to agree on a common delineation of the Carpathians. While the Carpathian Ecoregion is a generally agreed boundary, it was also discussed that this boundary may be sub-optimal for integrating ecological, social, and economic data. Usually, relevant socio-economic information is collected on different administrative levels and can therefore only be reliably associated with administrative boundaries. It shall thus be useful to provide and intersect a second set of nested administrative boundaries with the Carpathian Ecoregion.

There was a lively discussion on the kind of research a consortium should be aiming for: A participatory approach with a strong focus on demonstration and application centered research and a focus on local stakeholders. Or an approach driven by basic research and increased fundamental knowledge, extending to issues such as in-depth methodological insights. Also stakeholders might be approached on the national to European level, i.e. in terms of understanding the effects of national or European policies on biodiversity and ecosystem goods and services. While biodiversity seems generally important, balancing of local livelihoods, ecosystem goods and services, along with biodiversity seemed more important to most participants.

The most important finding of the workshop was that all participants expressed their deep interest in intensive and extended future research collaboration.

3.3 Project strategy

The different viewpoints on applied versus academic research suggest that a single approach will most likely not fulfill the different facets of research interests. At the same time,

there is a significant overlap of common research interests to closely link different research activities in the future. One platform to establish research contacts is S4C under the umbrella of MRI (compare 2.2.6). Different opportunities were discussed:

A collaborative research project on balancing ecosystem services in the Carpathians with a strong link to participatory stakeholder involvement would be welcomed by all participants. It was agreed that the workshop results should build the basis to apply for an integrated project in the European Framework Programme 7. This option very much depends on appropriate calls and the workshop convener shall therefore identify potential future calls for proposals.

It would also be fruitful to establish a Marie-Curie funded Initial Training Network among those participants focusing on a rather academic approach. Research in Land System Science will build an ideal scientific topic to link young scientists from different disciplines in a European setting with a focus on the Carpathians. However, there is no open call or call planned for 2009. The workshop convener will approach the German national point of contact to explore future opportunities.

An important scheme to institutionalize networking activities on the European level is European Cooperation in the field of Scientific and Technical Research (COST). A COST application focusing on a European network in land change science is subject to re-submission in 2009 (Anette Reenberg, DK). This will not target the Carpathians as such, but allow integrating aspects of land change science in the Carpathian context.

It has also been discussed that a more applied scientific view needs to be taken, as well. Part of the participants is very interested in further developing a European project, which is centered on local stakeholders from an applied perspective, i.e. with concrete implications for local livelihoods, Carpathian environment and biodiversity. There is an obvious overlap to the above sketched project interests from a more academic perspective, as a demonstration phase in an integrated project should strongly interact with, for example, a regional project initiative from INTERREG resources. The previous CADSES transnational cooperation area is now divided into two regions, the Central Europe Programme and the South East European Space. Jacek Kozak (PL) already expressed his interest in focusing on forthcoming Central Europe Programme calls for proposals.

With strong interests in the domains of modeling and remote sensing, downstream services in the framework of Global Monitoring for Environment and Security (GMES) are an option to secure information based on satellite data for various projects. Partners around EURAC and Marc Zebisch (IT) have indicated their interest in applying, for example, for a dedicated “downstream service land” concerning the Alps and the Carpathians.

Finally, the European Environmental Agency (EEA) is interested in results from a Carpathian Land Change Science project in the frame of its future European mountain ecosystem assessment, "Peak Performance". EEA is an important European level stakeholder and has already held a workshop in November 2008 on potential European hotspots for a forthcoming integrated assessment of European ecosystems. Mountain hotspots could be the Alps and the Carpathians, which will open additional opportunities to support European level stakeholders in implementing their policy goals.

Annexes

- Annex 1: Final List of Participants**
- Annex 2: Statistical Information on Participants**
- Annex 3: Final Programme**

Annex 1 Final List of Participants

1. Professor Per Angelstam, SE
2. Dr. Astrid Bjørnsen Gurung, CH
3. Professor Wolfgang Cramer, DE
4. Professor Marine Elbakidze, UA
5. Dr. Anna Guttova, SK
6. Dr. Lubos Halada, SK
7. Professor Patrick Hostert, DE (*convenor*)
8. Dr. Jacek Kozak, PL
9. Dr. Ivan Kruhlov, UA
10. Dr. Tobias Kuemmerle, US
11. Professor Eric Lambin, BE
12. Dr. Sebastian van der Linden, DE (*local organizer*)
13. Dr. Daniel Müller, DE
14. Jan-Erik Petersen, DK
15. Dr. Jörg Priess, DE
16. Professor Anette Reenberg, DK
17. Dr. Achim Röder, DE
18. Dr. Thomas Udelhoven, LU
19. Dr. Peter Verburg, NL
20. Dr. Marc Zebisch, IT
21. Mihai Zotta, RO

On the following pages, contact details, a short CV and a few lines with expectations towards the workshop are given for all participants.

PER ANGELSTAM

Affiliation and Contact Information

School for Forest Engineers
Faculty of Forest Sciences
Swedish University of Agricultural Sciences
Skogsmästarskolan
BOX 43
Herrgården
739 21 Skinnskatteberg
Sweden
Tel: +49-(0)222-34971
E-Mail: Per.Angelstam@smsk.slu.se

Short CV

Professional academic appointments

Per is an ecologist with a great interest in applying ecological knowledge in practical land-use management. He received his basic university education in biology (BSc) during three years at the University of Lund. In 1983 he finished his PhD thesis at Uppsala university on the population and community ecology of grouse (Tetraonidae) species in boreal forest. In particular the interactions between predators and prey and between forest landscape change and grouse were studied.

Per Angelstam's research interests then evolved into the emerging fields of landscape ecology with studies on the consequences of forest fragmentation on wildlife, and conservation biology with work on biodiversity maintenance and forest landscape management. In a joint project with physical and human geographers at Stockholm university a variety of landscape scale projects are carried out. See the project "Sustainable landscapes" with Remote Sensing for the Environment (RESE).

Since 1990 Per Angelstam has been using the steep north European forest and land-use history gradient from Scandinavia to Russia for studies of landscapes and their species composition. Important questions are how the composition and structure of the boreal forest has changed in different spatial scales, from trees to landscapes, and on how the abundance of habitat specialists among birds, lichens and bracket fungi has responded to the anthropogenic transformation of landscapes. Based on this work a model for landscape planning and monitoring of biological diversity in different spatial scales has been developed - see the European Union BEAR project.

Finally, Per Angelstam is involved in the practical implementation of research both by trying to synthesise existing knowledge, and by educating students in landscape ecology as well as by training forest and land-use managers in ecological landscape planning. Since 1992 Per Angelstam is an associate professor at the Forest faculty's Department of Conservation Biology at the Swedish University of Agricultural Sciences. His working hub is the Forest faculty's Wildlife Research Station Grimsö, located about 200 km west of Stockholm in the old mining district Bergslagen.

My expectations

-

ASTRID BJÖRNSÉN-GURUNG

Affiliation and Contact Information

Mountain Research Initiative: Europe (MRI Europe)
Österreichische Akademie der Wissenschaften
FS Gebirgsforschung: Mensch & Umwelt (IGF)
c/o University of Berne
Institute of Geography
Erlachstr. 9a, Trakt 3
3012 Berne
Switzerland
phone: +41 31 631 51 41
Email: bjoern@giub.unibe.ch

Short CV

Professional academic appointments

- 1993-1994 IUCN Nepal: Insect Biodiversity and Education
- 1996 ICIMOD/NARC Nepal: Indigenous Knowledge of Pest Management in Nepal“ (SDC).
- 1997 Module development for Integrated Pest Management for Jiri Technical School, SDC Nepal
- 1997-1998 Evaluation and monitoring of Farmer Field Schools, CIP Indonesia
- 1997-1999 Teaching German language for foreigners, Switzerland
- 2003-2008 Scientific Coordinator GLOCHAMORE (EU FP6)
- 2003-2005 Scientific Project Manager "MRI Europe", Mountain Research Initiative, Berne
- 2008-present Programme Manager "MRI Europe", ÖAW/IGF, Innsbruck/Berne
- 1995-present Scientific illustrator (WWF, ETH, and others)

Education

- 1989-1990 School of Art and Design Zurich, Zurich
- 1990-1995 Study of Environmental Sciences, ETH Zurich
- 1996-1998 Master of Advanced Studies ETH in Development and Cooperation, MAS ETH EZA
- 1998-2001 PhD Research on „Indigenous Knowledge of Storage Pest Management in Nepal“, ETH Zurich/ICIMOD, Nepal

Scientific Focus

Interface research and development; global change in mountains; interdisciplinarity in science; Europe; networking and research coordination.

My expectations

...on what I can contribute to and how my work could benefit from the meeting

- Gaining more complete picture on the status of global change research in the Carpathian region
- Contribute to and benefit from networking in view of future activities
- Provide link to GLOCHAMORE research Strategy and contribute expertise in strategic development of research agendas
- initiate and facilitate integrated/interdisciplinary project ideas (S4C network)
- make WS results/presentations accessible to a wider audience (through webcast)

WOLFGANG CRAMER

Affiliation and Contact Information

Potsdam-Institut für Klimafolgenforschung
Telegraphenberg
P.O. Box 60 12 03
D-144 12 Potsdam
Germany
Tel.: +49-331-288-2521
e-mail: Wolfgang.Cramer -at- pik-potsdam.de

Short CV

Professional academic appointments

Since 2003 Professor (chair) of Global Ecology, Institute of Geoecology, Potsdam University
2007 – 2008 Visiting scientist, Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement, Aix-en-Provence, France
1993 – 2007 Department Head, Dept. "Global Change and Natural Systems", Potsdam Institute for Climate Impact Research
1993 Professor (chair) for "Energy, Environment and Society" ("Brundtland-Professor"), Center for Environment and Development, Trondheim University, 1993
06-07/1989 Research Scholar, Sustainable Development of the Biosphere, International Institute for Applied Systems Analysis (IIASA), Laxenburg (Austria)
1988 – 1990 Director, Dept. Geogr., Trondheim University
1986 – 1992 Associate Professor for Environmental Geography, Department of Geography, Trondheim University, Trondheim (Norway)
1986 Postdoctoral research fellow, Modelling Forest Dynamics, Institute of Plant Ecology, Uppsala University, Uppsala (Sweden)

Education

1975 – 1981 Geography (Diploma), Justus-Liebig-Universität Gießen (Germany)
1978 – 1979 DAAD-Fellow, Institute of Plant Ecology, Uppsala University (Sweden)
1981 – 1986 Vegetation Science (Ph.D.), Uppsala University
Dissertation: "Vegetation Dynamics on Rising Sea-Shores in Eastern Central Sweden"

Scientific Focus

Global biosphere dynamics and feedbacks between the biosphere and the rest of the Earth System including human society. Vulnerability of ecosystems to global change.

My expectations

-

MARINE ELBAKIDZE

Affiliation and Contact Information

Faculty of Geography
Ivan Franko National University of Lviv
Doroshenko str. 41
Lviv 79000
Ukraine
phone: +380-322-394744

School for Forest Engineers
Faculty of Forest Sciences
Swedish University of Agricultural Sciences
PO Box 43
SE-739 21 Skinnskatteberg
Sweden
+46 (0)222-34971
e-mail: marine.elbakidze@smsk.slu.se

Short CV

Professional academic appointments

- 2007 – 2008 Coordinator from the Ukrainian side of the Neighborhood program Poland – Belarus - Ukrainian Interreg 3A/Tasic CBC “Cooperation of Universalities for the development of Lublin and L’viv regions”. Coordinator from Ukrainian side of the Belarus - Sweden - Ukraine project "Forest and society – measuring and communicating dimensions of landscape sustainability” supported by Swedish Institute. The external consultant of the Baltic Forest Project (Interreg 3B)
- 2006-2007 The coordinator from Ukrainian side of the Belarus – Sweden – Ukraine project “Forest and society – measuring and communicating dimensions of landscape sustainability” supported by Swedish Institute.
- 2006 The consultant of Joint Sweden–Poland–Ukraine project “Natural resources information for the management of national parks in the Polish-Ukrainian boundary region of Bieszczady Mts” supported by Swedish Institute.
- 2004-2005 Consultant of TASIC Project “Working out the strategy of balanced development of urban green zones and parks in L’viv”
- 2003 DAAD Scholar (research on the ecological land-use in the Schorfheide-Chorin Biosphere Reserve, Germany)
- 2001 Consultant of the Pamir Strategy Project (Institute of Geography, Bern, Switzerland)
- 2000 – 2001 The Fulbright Scholar at Syracuse University, State of New York, USA.
- 1997 – 2000 Participant of ENARECO Project (Tempus/Tacis). Research in the Jasmund National Park, the Muriets National Park, the Berchtesgaden NP, Bavarian Forest NP.

Academic appointments

- 2007 - present Swedish University of Agricultural Sciences, Faculty of Forest Sciences, Docent
- 1995 – present L’viv National University, Docent, Faculty of Geography, Dept. of Physical Geography.
- 1991- 1994 L’viv National University, Lecturer, Faculty of Geography, Dept. of Physical Geography.
- 1985- 1991 Tbilisi State University, Georgia Researcher, Faculty of Geology and Geography, Department of Cartography. Mountain researcher at the Caucasus, the Pamir, the Kopet-Dag expeditions.
- 1981- 1985 Laboratory Assistant, Faculty of Geography, L’viv State University. Mountain researcher at the Carpathian, the Crimea expeditions.

Education

- 1994 Candidate of Science (PhD equivalent), Institute of Geography, Kiev. Title of Ph Thesis: Landscape Geophysical Analyses of Great Caucasus High Mountain Landscapes
- 1981 Diploma of Higher Education with Highest Honors, L’viv State University, L’viv, Ukraine

Scientific Focus

Integrated management of forest landscapes

My expectations

- To define ways for collaboration in the Carpathian ecoregion
- To find out partners for transboundary cooperation in the ecoregion

ANNA GUTTOVA

Affiliation and Contact Information

CERI – Carpathian EcoRegion Initiative
Podunajská 24
82106 Bratislava, Slovakia
guttova@daphne.sk
www.carpat.es.org

Institute of Botany, Slovak Academy of Sciences
Dúbravská cesta 14
845 23 Bratislava, Slovakia

Short CV

Professional academic appointments

- 2002 The Royal Society, International Exchange Grant – Natural History Museum, London, Great Britain; Study of type and historical British material of selected species of the genus *Leptogium* (lichens); tracing type material, gathering facts on morphology and anatomy (*L. cretaceum* and *turgidum* groups)
- 2003 SYS-resource (EU-funded), Natural History Museum, London, Great Britain; Genetic variation within British populations of *Leptogium turgidum* agg (lichenized Ascomycetes). Acquiring lab routines for molecular study of nuclear and mitochondrial genomes of the selected lichens, skills to use computation software for evaluation of the sequencies
- 2003-2004 NATO-CNR outreach fellowship programme, Università degli studi di Siena, Dipartimento di Scienze Ambientali, Sezione di Ecologia e Sistematica Animal e Vegetale, Unità di Ricerca di Lichenologia, Siena, Italia; Selection of a method for numerical interpretation of environmental quality on the grounds of lichen diversity
- 2002 -2005 Desk officer for Slovak and Czech LIFE-Nature projects and plants expert – Technical and scientific collaborator
- 1999 - present lichenologist, Institute of Botany, Slovak Academy of Sciences, Bratislava, Slovakia; Expertise in the following aspects of lichenology: species diversity studies (Central Europe, Mediterranean, Black-sea coast), taxonomy and nomenclature (genera *Leptogium*, *Solenopsora*, *Anema*, *Peccania*, *Lecanora*; chemotaxony, genetic markers, anatomy and morphology), bioindication (LDV method, Italy, Slovakia), expertise for State Nature Conservancy (amendments to the annexes of Habitats Directive in the pre-accession process, national red list, legally protected species); teaching, curation, editing, supervising of diploma and PhD students
- 2006 - present project manager, CERI - Carpathian EcoRegion Initiative; Local programme manager of the BBI Matra project “Development of a Carpathian Ecological Network: Strengthening the Capacities of the Carpathian EcoRegion Initiative (CERI) in Supporting the Implementation of the Carpathian Convention. Responsible for coordination of the work groups, reporting, smooth and regular communication with project partners and CERI partners and with other relevant projects

Education

- 1990 – 1995 Master degree, Comenius Univ. Bratislava, SK, Thesis: Lichens of the Kysuce county
- 1995 – 1998 PhD, Institute of Botany, Slovak Academy of Sciences, Bratislava, Slovakia, Thesis: Taxonomy and distribution of the genus *Leptogium* in Slovakia and Czech Republic.

Scientific Focus

biodiversity (in a broad sense, diversity of lichens in a strict sense)
ecological networks; management plans

My expectations

- share experience of the work on design of a Carpathian Ecological Network with wider audience
- search for opportunities and cooperation for extension of current activities targeted to biodiversity of the Carpathians

LUBOS HALADA

Affiliation and Contact Information

Institute of Landscape Ecology SAS, branch Nitra
Akademicka 2, P.O.Box 23B, SK-949 01 Nitra, Slovakia
Phone: +421 37 733 5604; fax: +421 37 733 5608
E-mail: lubos.halada@savba.sk

Short CV

Professional academic appointments

- 1998-present Institute of Landscape Ecology SAS, branch Nitra, senior scientists
- 1990-1998 Institute of Landscape Ecology SAS, branch Nitra, scientists
- 1988-1990 Institute of Experimental Biology and Ecology, Dept. of Landscape Ecology, research assistant
- 1995-1998 Institute for Projecting in Agriculture, Bratislava, assistant

Education

- 1990-1998 PhD., Ecology, Landscape Ecology, Technical University Zvolen, Slovakia
PhD. thesis: Landscape-ecological evaluation of vegetation
- 1985 Natural Sciences Doctor (RNDr.- Rerum Naturae Doctor), Comenius University, Bratislava, Slovakia
- 1980-1985 Comenius University, Bratislava, Slovakia, field "Protection of Environment"
thesis: *Ruscus hypoglossum* L. - threatened species of the Slovak flora

Scientific Focus

Landscape and vegetation ecology (especially grasslands, stream-side vegetation, mountain ecosystems) on the level of communities and landscape; plant species and habitat conservation, biodiversity assessment.

My expectations

- To receive information about ongoing research activities in Carpathians
- To make new contacts with people working in Carpathians in similar fields and to strengthen established contacts
- To present results achieved by Institute of Landscape Ecology in the land-use changes research in the Slovak Carpathians

PATRICK HOSTERT

Affiliation and Contact Information

Humboldt-Universität zu Berlin
Geomatics Lab
Geography Department
Unter den Linden 6
10099 Berlin
Germany
Phone: +49 30 2093 6805; Fax: +49 30 2093 6848
Email: patrick.hostert@geo.hu-berlin.de; www: <http://www.hu-geomatics.de>

Short CV

Professional academic appointments

Humboldt-Universität zu Berlin, Germany

2006-present Full Professor, Head of Geomatics Lab, Geography Department

2007-present Deputy Director, Geography Department

2002 – 2006 Assistant Professor, Geography Department

Trier University, Germany

2001-2002 Postdoctoral Fellow, Department of Remote Sensing

1996-2001 Scientific Assistant, Department of Remote Sensing

Education

2001 Ph.D., Remote Sensing; Trier University, Germany

Monitoring of land degradation in the European Mediterranean with remote sensing and GIS. Examples from the rangelands of central Crete (in German)

1995 M.Sc., Geographical Information Systems; Edinburgh University, UK

1994 Diplom Physical Geography (distinction); Trier University, Germany

Scientific Focus

My research focuses on long-term monitoring of land-use / land cover change and land modifications and related consequences for ecosystem goods and services, e.g. biodiversity. Important topics are land change analysis in European transformation countries, megacity regions and the wildland-urban interface. Further interest centres on land degradation and desertification monitoring and assessment. From a methodological viewpoint, integrating remote sensing with geoinformation analysis and advanced remote sensing methods play a major role.

My expectations

Eastern Europe has experienced dramatic change since the “Fall of the Iron Curtain”. While related effects on land-use are generally acknowledged, exact rates of land-use change and its effects on ecosystem services and biodiversity are largely unknown. With the Carpathians stretching across seven countries, however, great scientific opportunities occur when comparing rates and spatial patterns of land-use change across borders during and after socialism. Such analyses can directly be linked to policies, socioeconomic conditions, governance, culture, and institutions. Considering today’s discussion on food security, biofuels, carbon sequestration potential, and biodiversity, decreased human pressure on nature after the breakdown of socialism creates unique research opportunities. Studying Carpathian mountain ecosystems therefore also bears considerable potential to deepen our understanding of the future role of Eastern European ecosystems.

As a researcher at the cross-section of remote sensing and LUCR research with a focus on Eastern Europe, I have learned that excellent regional research is undertaken in Eastern European countries. However, I have also learned that research efforts are often fragmented. Also, research goals of the land change science community are often not well recognized. It is hence far from trivial to link related

research domains.

On the one hand, I wish to learn more about the state-of-the-art in biodiversity research in mountainous ecosystems against the background of global (climate) change. On the other hand, the unique setting of the Carpathian Mountains in the heart of Eastern Europe will hopefully provide me with a deeper insight into how policies influence governance, institutions and local livelihoods – and ultimately regional land cover and biodiversity.

Stemming from the “methods domain”, complementing my view on multitemporal remote sensing techniques for long-term monitoring is intriguing for me. I am interested to learn more about how results from remote sensing data analysis can be linked to processes “on the ground” and how such links can be translated into spatially explicit models. I believe that developing stronger empirical evidence for explaining and modeling the drivers of change in the Carpathians should allow us to create scenarios to assess land-use effects on ecosystem services and biodiversity.

We designed the EuCaRe workshop as a forum to establish a deeper understanding on the state-of-the-art of the disciplines involved. We want to identify and bridge gaps between otherwise segregated scientific communities, and recognize research needs related to a more integrated view on Carpathian Mountain land-use change and biodiversity.

We actually hope to inspire a group of devoted scientists of new research opportunities by developing their respective disciplines beyond established domains!

JACEK KOZAK

Affiliation and Contact Information

Department of GIS, Cartography and Remote Sensing, Institute of Geography and Spatial Management, Jagiellonian University
Gronostajowa 7
30-387 Kraków,
Poland
tel. +48-12-6645299
fax +48-12-6645385
email: jkozak@gis.geo.uj.edu.pl

Short CV

Professional academic appointments

1989 - present Institute of Geography and Spatial Management, Jagiellonian University, Kraków, Poland; currently head of the Dept. of GIS, Cartography and Remote Sensing
2004-2006 seconded national expert, Land Management & Natural Hazards Unit, Institute for Environment and Sustainability, European Commission-DG-JRC, Ispra, Italy

Education

1984-1989 MSc studies at the Institute of Geography, Jagiellonian University
1995 PhD; Institute of Geography and Spatial Management, Jagiellonian University
2007 Habilitation, Jagiellonian University

Scientific Focus

land-use and land cover change; mountain environments and human impact; Geographic Information Science; applications of GI technology in environmental research / geography; landscape ecology; GIS&T in geographical education; e-learning

My expectations

- to meet other researchers working in the Carpathians and exchange information on LUCC research in the Carpathian area; especially compare various national perspectives
- to see the wider context, e.g., why Carpathians may be of interest to the global science community
- to exchange views on future impacts of GI technology (e.g., remote sensing, spatial data infrastructures) for LUCC
- to strengthen existing initiatives, like Science for the Carpathians (S4C)

IVAN KRUGLOV

Affiliation and Contact Information

Faculty of Geography
Ivan Franko University
Doroshenko str., 41
79000 Lviv Ukraine

E-mail: ikruhlov@gmail.com

Phones: +38 032 2754999, 2394744

Fax: +38 032 2722644

Short CV

Professional academic appointments

- Since 1996 Docent (Associate Prof.) at the Department of Physical Geography, Ivan Franko University
- 1999-2005 Member and a sub-project leader of the multi-disciplinary German-Ukrainian Project "Transformation Processes in the Dnister Area (Western Ukraine)". Focus on environmental geo-spatial modelling.
- Since 2005 Leader of the Ukrainian team in the Swedish-Polish-Ukrainian project "Natural resources information for management of national parks in the Polish-Ukrainian border region of Bieszczady Mts (the Carpathians)". Focus on modelling of geo-ecosystems.
- Since 2007 GIS expert in several BBI-MATRA (the Netherlands) Carpathian biodiversity projects. Focus on biodiversity geo-data collection, geocological regionalisation, ecological networks modelling.

Education

- 1981-1986 Undergraduate course in Geography, Faculty of Geography, University of Lviv, Ukraine
- 1986-1990 Postgraduate course in Physical Geography, Physics and Chemistry of Landscapes, Department of Physical Geography, University of Lviv, Ukraine. Candidate of Science (Ph.D.) dissertation title: "History, Modern State and Development Prospects of Natural Terrain Units in Lviv and the Vicinity" (In Russian.)

Scientific Focus

Geocology (topography-soil-climate-vegetation/land-use interactions) of Western Ukraine
Geocological applications of geographical information systems and remote sensing
Geocological aspects of urban and regional planning and landuse change

My expectations

More distant perspective: Finding partners for the full-blown trans-/inter-disciplinary project on sustainable physical planning in the Ukrainian Carpathians as a part of the Carpathian Ecoregion.

Closer perspective: Seeking for expertise and partners to study implications of recent landcover/landuse changes in the Ukrainian Carpathians for biodiversity, namely for ecological networks.

TOBIAS KÜMMERLE

Affiliation and Contact Information

University of Wisconsin-Madison
Forest and Wildlife Ecology
1630 Linden Drive
Madison, WI 53706
phone: +1/608 265-9219
fax: +1/608 262-9922
kummerle@wisc.edu

Short CV

Professional academic appointments

- since 2008 Postdoctoral Researcher, Forest and Wildlife Ecology, University of Wisconsin-Madison
- 2007-2008 Postdoctoral Researcher, Geography Department, Humboldt-Universität zu Berlin

Education

- 2007 Ph.D., Geography Department, Humboldt-Universität zu Berlin
- 2003 Diploma, Applied Environmental Sciences, University of Trier

Scientific Focus

The goal of my research is to contribute to a better understanding of coupled human-environment systems on the land. I am particularly interested in Eastern Europe and the former Soviet Union and the land-use changes that happened in this region after the breakdown of socialism. My work aims at monitoring land-use change, improving understanding of its underlying causes, and exploring land-use effects on habitat fragmentation and biodiversity. Spatially explicit analyses including remote sensing, GIS, spatial statistical models, and landscape ecology tools are the methodological basis of my research.

My expectations

I hope the EuCaRe workshop will contribute to

- start drafting a research agenda for studying land systems in the Carpathians at the ecoregion level
- help identifying opportunities where land-use science in the Carpathians could advance our understanding of land systems in general (e.g., to help better understand effects of political and economic shocks, changes in subsidy systems, changes in land ownership patterns, or the importance of land-use legacies for land-use change)
- foster new contacts and collaborations between regional scientists and the land-use / GEC science communities.

ERIC LAMBIN

Affiliation and Contact Information

Department of Geography
Université catholique de Louvain
3, place Louis Pasteur
B-1348 Louvain-la-Neuve
Belgium
Phone: +32/10/47.44.77 or 47.28.73
Fax: +32/10/47.28.77
e-mail: eric.lambin@uclouvain.be

Short CV

Eric Lambin is Professor at the Department of Geography at the University of Louvain, Belgium. He was previously Assistant Professor at Boston University and Expert for the European Commission at the Joint Research Center (Ispra). He has been Chair of the « Land-Use and Land-Cover Change » (LUCC) programme of the *International Geosphere-Biosphere Programme (IGBP)* and *International Human Dimensions Programme on Global Environmental Change (IHDP)*. The research interests of Eric Lambin include the monitoring of land change by remote sensing and the modeling of land-use changes and some of their impacts on coupled human-environment systems. In 2002-2003, he was resident as Fellow at the *Center for Advanced Study in the Behavioral Sciences* at Stanford.

My expectations

- Understand processes, causes and impacts of land change in the region;
- Design project for in-depth research in several countries of the region, for possible funding;
- Explore possibility of approaching this as a natural experiment: how a major and rapid policy change affected land-use.

DANIEL MÜLLER

Affiliation and Contact Information

Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO)
Theodor-Lieser-Str.2
D-06120 Halle (Saale)
Telephone: + 49-345-2928-328
Fax: + 49-345-2928-399
E-mail: mueller@iamo.de
www.iamo.de
www.hu-berlin.de/~muelleda/index.htm

Short CV

Professional academic appointments

Since 06/2006	Research Associate, Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO)
01/2007 - 05/2007	Senior Researcher, Center for Development Research (ZEF), University of Bonn
07/2003 - 12/2006	Postdoctoral Research, Humboldt-Universität zu Berlin
02/2000 - 05/2003	Doctoral research fellow, Georg-August University Göttingen and GTZ, Vietnam

Education

02/2000 - 05/2003	Doctoral research, Georg-August University Göttingen
11/1994 - 07/1999	Diplom, Humboldt-Universität zu Berlin, agricultural economics

Scientific Focus

- human-environment interactions in the land system
- spatial statistics and pattern recognition
- development economics and poverty-environment interactions
- land administration and cadastral systems

My expectations

I expect to broaden my overview knowledge of the Carpathians and to link to leading researchers in the fields of monitoring, understanding, and projecting land change as well as its linkages to biodiversity. I am particularly interested in country-specific insights of land change patterns and processes. I hope the workshop will help prioritizing major points for future inquiry and help drafting a future research agenda for this ecoregion.

JAN-ERIK PETERSEN

Affiliation and Contact Information

Project manager agriculture and environment
European Environment Agency
Kongens Nytorv 6
DK-1050 Copenhagen K
Tel.: +45 3336 7133
Email: Jan-Erik.Petersen@eea.europa.eu

Short CV

Professional academic appointments

For 1.5 years I worked as international officer for a Spanish conservation organisation and for three years at the Institute for European Environmental Policy (IEEP) in London. I joined the European Environment Agency in May 2001 as a project manager for agriculture and environment.

Education

I hold a degree in biology and have completed a PhD on the implementation of agri-environmental policy in Spain.

Scientific Focus

- Responsibility for the development of agri-environmental indicators, related sectoral assessments, cooperation with EU institutions as well as contributions to major EEA reports, topic and sector reports
- coordination work on high nature value farmland, related policy analysis and EEA assessments on the environmental impacts of bioenergy production, including global indirect effects

My expectations

The EEA is interested in the ESF workshop on Carpathian land-use change for two main reasons:

- For exploring the potential contribution of this research exercise to the EEA EURECA project
- For understanding better potential research approaches to land-use change in Europe and their implications for EEA analysis

JÖRG PRIESS

Affiliation and Contact Information

Center for Environmental Systems Research
University of Kassel
34109 Kassel
Germany
priess@usf.uni-kassel.de
<http://www.usf.uni-kassel.de/cesr>

Short CV

Professional academic appointments

since 2004 Assistant professor
since 2001 Research group leader (land-use dynamics)
1999 – 2000 Research fellow at the University of Wageningen - The Netherlands
1994 – 1998 Postdoc at University of Goettingen - Germany
1992 – 1993 PhD student at University of Goettingen - Germany
1990 – 1991 Field research in Venezuela; PhD student at University of Goettingen – Germany
 (Instituto de Investigaciones Cientificas IVIC, Caracas and Universidad de Guayana,
 Venezuela)

Education

1995 PhD in forestry (tropical ecology & soil science)
1989 MSc courses in tropical agriculture & forestry
1988 MSc in biology (plant ecology/physiology)

Scientific Focus

Development and application of land-use models for regional & larger scales
Main developer of the SITE modeling framework
Application and codevelopment of ecosystem and vegetation models (DayCent, LPJ-DGVM)
Codeveloper of the land-use model Landshift (for continental to global scale studies)
Modeling of socio-environmental impacts of land-use dynamics
Modeling of links and feedbacks between the antroposphere and the environment
Contributing to the Global Land Project, especially in the field of integrated modelling

My expectations

I would like to learn more about the land-use dynamics, their drivers and impacts in East and SE-Europe, especially with respect to the question whether or not it is possible to identify "typical" pattern, both on the driver and the impact sides.
Secondly, I like to present and discuss the modelling concepts we use with the purpose of (i) offering a potentially useful simulation tool and (ii) getting feedback about the tool such as shortcomings, additional modules (concepts) needed, etc.

ANETTE REENBERG

Affiliation and Contact Information

Professor in landscape & agricultural geography.
Department of Geography and Geology, University of Copenhagen,
Øster Voldgade 10
DK-1350 Copenhagen K.
Phone: +45 35 32 25 62, Fax: +45 35 32 25 01.
e-mail: ar (at) geo.ku.dk
www.geo.ku.dk

Short CV

Professional academic appointments

Professor, Institute of Geography, University of Copenhagen (IGUC) 1998- ; Associate professor IGUC 1977-1998; Assistant professor IGUC 1974-1977

Education

Danish high school degree 1967. Visiting master student University of Toronto (5 months in 1973). Master of Science in Geography, University of Copenhagen 1974. Dr. Scient. in Geography (agricultural land-use systems), Faculty of Science, University of Copenhagen 1999.

Scientific Focus

Landscape and agricultural geography. More specifically my research addresses issues related to natural resource management strategies in rural landscapes. The focus is on land-use and land cover systems viewed in a landscape ecological perspective as well as in an interdisciplinary, coupled human-environment system perspective, i.e. relating land-use dynamics to their larger scale contexts of biophysical, cultural, socio-economic, institutional or demographic nature. Furthermore, historical aspects in terms of environmental history and cultural landscape analysis are included. Empirical emphasis is on agricultural systems, cultural landscapes and landscape ecology in Denmark and on land-use systems in the semi-arid and arid tropics, including adaptation to climate change.

My expectations

I am currently Chair of The Global Land Project's Scientific Steering Committee (www.globallandproject.org). Hence, I am looking forward to join this meeting and link up with leading scholars and institutions within the field of Land Systems Science.

ACHIM RÖDER

Affiliation and Contact Information

Universität Trier
FB VI Geography/Geosciences
Remote Sensing Department
Campus II
D-54286 Trier
Germany
phone: +49.651.2014606
e-mail: roeder@uni-trier.de

Short CV

Professional academic appointments

- 06/2007 – present Tenured scientist Remote Sensing Department, University of Trier
1/1998 - 05/2007 Research assistant in various EU- and ESA-funded research projects with a focus on land degradation and desertification assessment and monitoring

Education

- 5/2002 - 12/2005 PhD; Remote Sensing Department, University of Trier, Germany (Dr. rer. nat)
Title of thesis: A Remote Sensing Based Framework for Monitoring and Assessing Mediterranean Rangelands. Case Studies from Two Test Sites in Spain and Greece (in English)
10/1990 – 8/1997 Applied Physical Geography, University of Trier, Germany
(degree: Diplom-Geograph)
Title of the thesis: Radiometric intercalibration of Landsat-MSS and –TM to infer comparable indicators of soil- and vegetation properties. A case study on the island of Crete (Greece) (in German)
8/1988 – 3/1990 Civil Service at Medical Rehabilitation Centre Dobel (Germany)
9/1979 – 6/1988 Gymnasium Neuenbürg (Württemberg, Germany) (degree: Abitur)
8/1975 – 7/1979 Grundschule Feldrennach (Germany)

Scientific Focus

I am presently working on the integration of remote sensing and geomatics techniques to characterize landscape trends and changes based on time series analysis and assess the influence of driving factors. I have a particular focus on degradation-/fire-affected semi-arid regions of the European Mediterranean. Besides, I am interested in the derivation of biophysical vegetation-related indicators under consideration of scaling effects and scale transitions.

My expectations

I hope to meet colleagues with similar research interests but a different perspective and background, have interesting discussions and learn about transformation processes in Eastern Europe.

I believe our group could contribute expertise in integrating remote sensing based approaches with physical and socio-economical information to address complex land-use change processes. These have occurred in Southern European countries, to a large part as a result of their accession to the EU in the early/mid 1980s. Given this, these areas might provide an interesting blueprint against which to assess present/future dynamics in Eastern Europe.

THOMAS UDELHOVEN

Affiliation and Contact Information

Centre de Recherche Public – Gabriel Lippmann
Département 'Environnement et Agro-biotechnologies'
41, rue du Brill
L-4422 BELVAUX
Phone: +352 47 02 61 870
Fax: +352 47 02 64
e-mail: udelhove@lippmann.lu

Short CV

1993-1997 Research assistant at the Department of Hydrology, University of Trier, Germany
1997 Ph.D. in environmental sciences and hydrology
1996 – 2007 Research associate at the Department of Remote Sensing, University of Trier, Faculty of Geography/Geosciences
2003 – 2007 Habilitation (with the research focus in Geoinformatics and Remote Sensing) Thesis: "Data mining tools and algorithms for knowledge discovery in long-term NOAA/AVHRR data archives"
Since 2007 Head of the Geomatic Platform at the Département Environnement et Agro-Biotechnologies (EVA), Centre de Recherche Public Gabriel Lippmann, Belvaux, Luxembourg

Scientific Focus

Self-controlled supervised land-cover classification and change detection
Time-series analysis, geostatistics, multivariate statistics
Ecosystem modeling
Radiative transfer modeling, diffuse reflectance spectrometry

My expectations

- to come into cooperation with other research groups that focus on land-cover changes in general and that provide respective models/methods
- to link observations at the coarse scale with socio-economic processes in the Carpathians at the fine scale
- to broaden my knowledge in quantitative land cover change modeling

PETER VERBURG

Affiliation and Contact Information

Land Dynamics Group
Wageningen University
Wageningen, the Netherlands
PO Box 47, 6700 AA Wageningen
peter.verburg@wur.nl

Short CV

I am mainly interested in the spatial analysis and modelling of agro-ecosystems, land-use, urban systems and landscape pattern. In the past ten years I have participated in a number of interdisciplinary (IGBP/IHDP) LUCR related research projects in different parts of the world, including China, the Philippines and Europe. Much research has been focused on projects related to the development and use of the CLUE model (<http://www.cluemodel.nl>), a well-established, spatially explicit methodology for simulating land-use change with many national and international counterparts and applications.

After obtaining my PhD at Wageningen University in 2000 I have worked as a postdoc at Utrecht University and since 2003 I am an assistant professor at Wageningen University in the Land Dynamics group. During the IGBP/IHDP LUCR project I was a staff member of the LUCR focus 3 office on Regional and Global integrated models of land-use change.

My expectations

I am highly interested in learning more about the land-use dynamics in this region, especially in the context of recent work as part of the EURURALIS project. I also envision that we may have interesting discussions about how to design methods that integrate analysis over different scales (region-wide but also location specific) and integrate qualitative and quantitative methods of analysis including stakeholder involvement and science-policy linkages.

MARC ZEBISCH

Affiliation and Contact Information

Institute for Applied Remote Sensing
EURAC research
Viale Druso 1, I-39100 Bolzano, Italy
t +39 0471 055 372
f +39 0471 055 399
Marc.Zebisch@eurac.edu
www.eurac.edu

Short CV

Professional academic appointments

Marc Zebisch is the scientific head of EURAC's Institute for Applied Remote Sensing

Education

Marc Zebisch graduated at the Potsdam University (Institute for Geoecology) and obtained his Ph.D. at the Technical University of Berlin (Institute for Landscape Development) in 2004.

Scientific Focus

He is specialized in monitoring and modeling land-use dynamics and the consequences of global change by means of remote sensing, GIS and computer models.

In the last two years at PIK he contributed as co-author to the EEA-report 'Impacts of Europe's changing climate' and as a leading author to the report 'Climate Change in Germany – Vulnerability and Adaptation of Climate sensitive Systems' financed by the German Federal Environment Agency. At EURAC he is working on improved methods how to identify the impacts of climate change, how to map the vulnerability to climate change and how to develop adaptation strategies for coping with the impacts of climate change in various EU, national and regional projects.

Marc Zebisch is funding member of S4C, an initiative supporting and fostering science and scientific networking in and for the Carpathians with a strong link to the Carpathian Convention.

My expectations

- Learn more about the state of the art of research on the Carpathians and understand how researchers and research institution from the Carpathians can be better involved in these activities.
- Understand the level of stakeholder involvement in current projects and discuss, how research on the Carpathians can be better linked with the demand of potential stakeholder and users.
- See, to which extend climate change research and remote sensing methodologies have already be applied within the Carpathians and if and how they have been linked with other research and policy activities.
- be informed if the EU GMES activities (Global Monitoring for Environment and Security) are known within the research community and to which extend they are linked to research/policy activities.

MIHAI ZOTTA

Affiliation and Contact Information

Romanian National Forest Administration Headquarters
Protected Areas Unit
Bucharest
Sector 1 bd. Magheru 31
0040213169848
0040727731437
mzotta@pcrai.ro
ariiprot@rosilva.ro

Short CV

Professional academic appointments

2004-present The Romanian National Forest Administration (Romsilva) - Bucharest, member of the team of Protected Areas Unit, working for coordination of 22 Romanian national and nature parks administrations and 240 nature reserves

Member of Scientific Committees for Călimani National Park, Comana Nature Park, Semenic National Park, Putna Vrancea Nature Park, Defileul Jiului National Park in Romania

Involved in the work groups in the processes of reviewing the protected areas legislation in 2006, 2007, 2008 and also in the process of reviewing of the environmental law in 2005

Member in the Committee for reviewing the National Plan for Environment Protection (National Agency for Environment Protection)

Consultant for environment and protected areas issues in the process of elaborating the Romanian Masterplan for Tourism (2007), member in the teams for developing Ecotourism Strategy for Romania in projects driven by the Romanian National Tourism Authority (2004, 2006)

Working in the Protected Areas team in coordinating the process of elaborating SOP Environment related projects by the subordinated park administrations (2007), involved in work group for establishing priorities for protected areas to be financed by SOP Environment Program in 2007

Member of the work group for Tourism inside the Carpathian Convention, participation in the work group for forestry inside the Carpathian Convention in 2007

2001 – 2004 Romanian National Forest Administration (Romsilva), Brasov, Piatra Craiului National Park, public awareness and education, chief ranger and tourism officer, working on the team of the GEF – World Bank “Biodiversity Conservation Management Project”

Education

Phd. thesis under development –Research related to Management of protected areas with forest coverage– with the Forestry Faculty in Brasov, Romania

1986 – 1991 Faculty of Forestry and Logging, Brasov of Romania.

Training Course “Specific activities required for fulfilling the objectives of the CBD Convention (Vilm Germany 2007)

Official license for Manager in Tourism Activities obtained in 2006

Scientific Focus

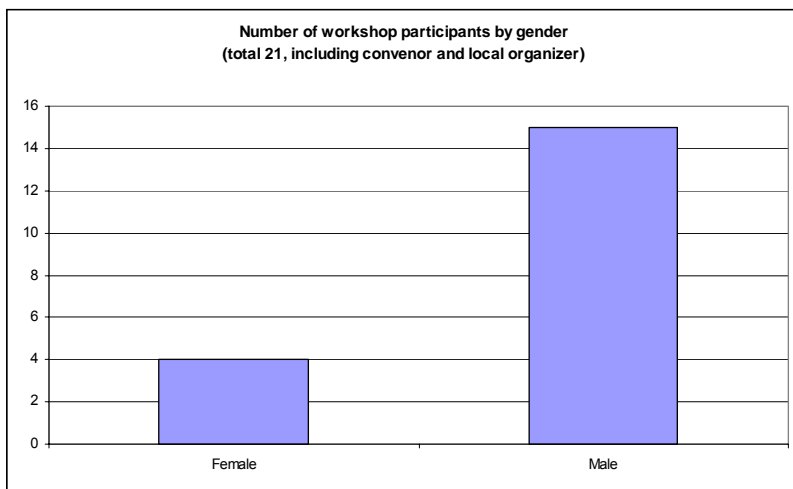
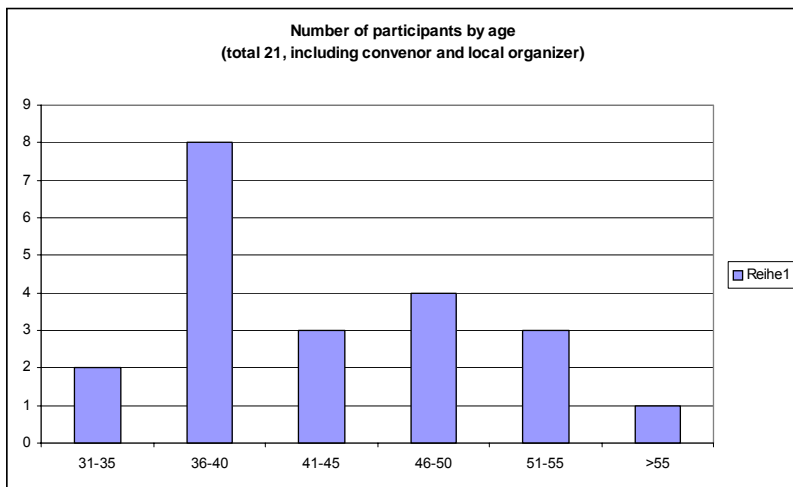
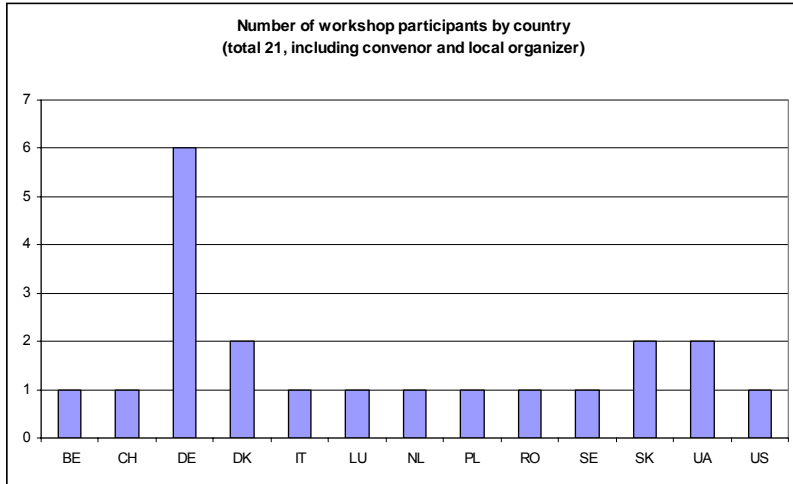
Management of natural protected areas in Romania

Sustainable tourism and ecotourism focused issues as tool both for conservation and for enhancing and maintaining local communities in the Carpathians

My expectations

To evaluate the opportunities for enabling research on human/environmental ecosystems in the Romanian Carpathians, research that should reveal and emphasis the real value (at the European and global level) of the traditions and of the traditional way of life still ongoing in the mountains. Also we are interested in socio economic research for evaluate the current status, the chances and the necessary tools for maintaining the people existence and traditions in the mountain villages.

Annex 2: Statistical Information on Participants



Annex 3: Final Programme

Wednesday 8 October 2008

Arrival

18.30 – 20.00 **Icebreaker** (with possibility to register)

Thursday 9 October 2008

08.45-09.00 Registration, Erwin-Schrödinger Zentrum, Berlin-Adlershof

09.00-09.10 **Opening Session, Patrick Hostert** (Convenor)

09.10-09.25 **Presentation of the European Science Foundation (ESF)**
Bogdan Mach (Standing Committee for the Social Sciences)

09.25-09.30 **Organisational remarks, Sebastian van der Linden** (Organiser)

09.30-11.00 **Framework of the Workshop**

Moderation: Eric Lambin (Univ. Louvain, Belgium)

Land change science: Anette Reenberg (Univ. Copenhagen, Denmark)

The Carpathian Ecoregion: Anna Guttova (CERI, Slovakia), **Marine Elbakidze, Ivan Kruglov** (both: Univ. Lviv, Ukraine)

The European perspective: Jan-Erik Petersen (EEA, Denmark)

11.00-11.15 *Coffee break*

11.15-13.00 **Biodiversity**

Moderation: Wolfgang Cramer (PIK, Germany)

Biodiversity in European Mountains and Eastern Europe: Per Angelstam (Swedish Univ. of Agricultural Sciences), **Astrid Björnsen** (MRI, Switzerland)

Biodiversity, nature conservation and protected areas in the Carpathians: Lubos Halada (Slovak Academy of Sciences, Slovakia), **Mihai Zotta** (ROMSILVA, Romania)

13.00-14.00	<i>Lunch</i>
14.00-15.45	<p>Monitoring</p> <p>Moderation: Patrick Hostert</p> <p>Monitoring Land Change: Achim Röder (Univ. Trier, Germany), Thomas Udelhoven (Centre Gabriel Lippmann, Luxemburg)</p> <p>Carpathian Land-use Change (incl. historic perspective and forest transitions): Jacek Kozak (Univ. Krakow, Poland), Tobias Kuemmerle (Univ. Wisconsin – Madison, USA)</p>
15.45-16.15	<i>Coffee break</i>
16.15-18.00	<p>Analyzing drivers of land system change</p> <p>Moderation: Tobias Kuemmerle (Univ. Wisconsin – Madison, USA)</p> <p>Strategies and approaches: Eric Lambin (Univ. Louvain, Belgium)</p> <p>Eastern Europe and the Carpathians: Daniel Müller (IAMO, Germany)</p> <p>The climate perspective: Wolfgang Cramer (PIK, Germany)</p>
18.00	Closing day 1
19.15-20.00	Transfer to dinner
20.00-22.30	<i>Dinner</i>

Friday 10 October 2008

- 08.30-9.45 **Future scenarios**
Moderation: Daniel Müller (IAMO, Germany)
The land-use perspective: Jörg Priess (CESR, Germany), **Peter Verburg** (Wageningen Univ., The Netherlands)
- 09.45-10.45 **Data collection and availability**
Moderator: Jörg Priess (CESR, Germany)
Marc Zebisch (EURAC, Italy), **Jacek Kozak** (on behalf of Marek Baranowski (UNEP-GRID, Poland))
- 10.45-11.00 *Coffee break*
- 11.00-12.30 **Roundtable discussions:**
Roundtable 1: **What can land change scientists learn in the Carpathians?** (Marine Elkabidze, Lubos Halada, Jacek Kozak, Tobias Kuemmerle, Anette Reenberg, Achim Röder, Sebastian van der Linden)
Roundtable 2: **What does an integrated land change science project in the Carpathians require?** (Patrick Hostert, Eric Lambin, Daniel Müller, Jörg Priess, Thomas Udelhoven, Peter Verburg, Kathrin Vohland on behalf of Wolfgang Cramer)
Roundtable 3: **What do stakeholders expect from an integrated land change science project in the Carpathians?** (Per Angelstam, Astrid Bjørnsen, Anna Guttova, Ivan Kruglov, Jan-Erik Petersen, Marc Zebisch, Mihai Zotta)
- 12.30-12.45 **Roundtable reports:**
Roundtable 1: **Anette Reenberg**
Roundtable 2: **Eric Lambin**
Roundtable 3: **Jan-Erik Petersen**
- 12.45-13.45 *Lunch*
- 13.45-14.45 *Weather permitting: "Coffee to go"*
Discussion of roundtable results along the "Trail of Thoughts" in the Adlershof Landscape Sanctuary
- 14.45-17.00 **Synthesis and planning of future collaborative research activities**
Moderator: Patrick Hostert
Discussion: all participants
- 17.00 **Closing session** - End of workshop