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UFZ Newsletter

HELMHOLTZ CENTRE FOR ENVIRONMENTAL RESEARCH – UFZ APRIL 2012

NATURAL CAPITAL GERMANY

We enjoy the value of nature every time that we go on a walk through the forest and yet very few people are aware of the fact that it is also the basis of our wealth. So far these values have been underestimated in both economic and political decisions. In the study “Natural Capital Germany – TEEB DE” scientists are therefore attempting to make people aware of the value and the economic significance of nature.

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HELMHOLTZ CENTRE FOR ENVIRONMENTAL RESEARCH – UFZ

Photo: André Künzelmann, UFZ

AUDITORS IN FORESTS AND FENS

Every step is padded as the moss beneath your feet soaks up the water like a sponge. Bullrushes are reflected in small ponds, while reeds gently sway in the wind that brushes against the hairy heads of cotton-grass. Purple marshlock flowers paint red dots against a greenish landscape, while sundew stretches out its sticky tentacles ready to prey on passing insects. At times the vibrating call of the aquatic warbler will ring through the air while at others it is the strange bleating calls of the Common snipe that sounds rather like a goat than a bird. Less than a hundred years ago such scenes were typical in many regions of Northern Germany with fenlands of various kinds covering between ten and twelve percent of the country. These provided sufficient habitat for plants and animals favouring moist conditions.
In the 19th and 20th century however these fenlands became increasingly more interesting for agriculture. By the end of the GDR era, in Mecklenburg-Western Pomerania alone, approx. 30,000 hectares had been drained and converted to pastures or agricultural land.

Underestimated services

"From today's perspective, this was a grave mistake", says Professor Dr. Bernd Hansjürgens, who heads the Department of Economics at the UFZ. In those days it would have appeared to be a good business decision: draining the land promised profits in the form of meat, milk or corn and didn't seem to cost anything apart from the costs of drainage channels and pumps. What did a few aquatic warblers and bullrushes really matter?

"In the meantime, however, we realize that an intact fen is not simply worthless wasteland", stresses the scientist. The idyllic fen does not only promote biodiversity, but provides water purification, acts as a source of humidity in times of drought and is a sink for harmful greenhouse gases created by our traffic – all very valuable services, which can if at all only be replaced with a great deal of money. But nobody gave that much consideration before the land was drained. A typical case of shortsightedness – and far from being the only one of its kind. There are so many similar decisions concerning land use that are still being made on a similar basis. The problem is always the same: it is relatively easy to calculate the profit to be gained from marketing natural resources and the resulting change to the habitat. The counter-calculation is far more complex i. e. which services will be lost from introducing the measure? And is their value higher than the profit that is to be expected? In order to be able to answer these questions, we would have to determine the value of an ecosystem from very concrete criteria, but these are simply not available in most cases. This is about to change under the context of the national study "Natural Capital Germany – TEEB DE", which is financed by the Federal Ministry of the Environment and by the Federal Agency for Nature Conservation. Headed by the UFZ, researchers and practitioners from all over Germany have until 2015 to try and make people aware of nature's services that are often overlooked. The project is a follow-up of the international project "The Economics of Ecosystems and Biodiversity" (TEEB), which between 2008 and 2010 closely examined the services provided by ecosystems all over the world – with interesting results. Healthy coral reefs for example can be valuable for tourism, the fishing industry or coastal protection. If all of these factors are added together, then one hectare of reef (depending upon its location and condition) can be said to provide an annual benefit with a value of up to one million US dollars. In view of such exciting realizations some countries (e. g. Brazil, Norway, the Netherlands and India) have already begun with similar studies on a national level. Natural Capital Germany – TEEB DE is now to provide such estimates for German ecosystems. "It is not a question of simply sticking a price tag on fenlands or forests", stresses Bernd Hansjürgens. He and his colleagues rather want to promote the conservation of ecosystems and biodiversity – in particular among those people, who have previously shown very little interest in such topics. Economics can provide some very strong arguments, the researcher is convinced: "It translates nature's significance into a language that more people can understand". Looking at things with economic spectacles can help people to recognize the value of ecosystems and to incorporate these into decision-making processes. The researchers are looking for cases that have already been implemented. They want to collate and evaluate as many successful examples as possible. "All scientists and experts with practical expe-

rience are cordially invited to participate" encourages Bernd Hansjürgens.

The value of the forest

UFZ employees can also contribute some good examples from their own research. Dr. Uta Berghöfer and her colleagues for example are working on the forests surrounding the large cities in the German state North Rhine-Westphalia. On behalf of the Ministry of the Environment of North Rhine-Westphalia and in co-operation with forest administrations of cities such as Essen, Düsseldorf, Aachen and Cologne with their own stands of forests, the researchers are taking a closer look at the beech and oak trees surrounding these cities.

What are these trees worth? From a forestry perspective the answer is simple: height? thickness? habit? timber quality? Within no time specialists are able to approximately estimate the price that a particular trunk will fetch. However these large city forests are not only useful as timber stock. They are also natural air filters and purification plants, sports grounds and children's playgrounds, wellness and education areas. For us to get a comprehensive picture of the services provided by the 'forests', we also have to consider these aspects – only how? Researchers have been discussing with local foresters, which services provided by forests are the most important in cities. For example the aspect of "food provision" could be eliminated, as although the forests in question provide some berries and mushrooms, this is not really essential food provision. Furthermore, the chance of discovering any future medicines is clearly much greater in tropical rainforests compared to these forests. The large city forests are however very important water reservoirs, sources of fresh air and sinks for greenhouse gases. Apart from their "timber" they are also particularly valuable in the fields of "recreation and health", "habitats for plants and animals" and "environmental education". The researchers now want to take a closer look at some of these aspects. They are looking for clear indicators that could be used by municipalities to record the individual services provided by their forests as precisely as possible and that can be communicated and incorporated into political decisions in the future. The number of school classes that are taken on a tour through the forest every year could for example be a good indication of what this area provides in terms of environmental education. Similarly, one could use the proportion of forest that is set aside as protected areas to derive its significance for plants and animals. It becomes more difficult when attempting to assess recreation and health. Although these functions obviously play a major role, it is still difficult to determine, just what a forest means for stressed city people and dog-walkers. Some of these aspects will be difficult to put down in numbers and it will probably only be possible to describe them qualitatively, scientists assume. Other values however it would seem can be expressed in monetary terms e. g. the contribution of forests to clean drinking water. How many litres of clean drinking water does a certain area provide every year and at what price could a technical purification plant provide the same kind of service?

Counting on fens

In these economic calculations nature often does surprisingly well. Whether we are dealing with purifying water or reducing greenhouse gas emissions: intact ecosystems are frequently more cost-effective and efficient than any high-tech plant. "Therefore from an economics point of view it is often also worth restoring degraded habitats", says Bernd Hansjürgens.

There is a large climate debate for example surrounding the drained peatlands of Northern Germany. One third of Mecklenburg-Western Pomerania's greenhouse gases come from this source alone and with more than six million tons of so-called CO_2 equivalents they are the largest single source of emissions impacting the climate. By comparison the generation of electricity only accounts for about four million tons of CO_2 equivalents annually in the same federal state, while traffic accounts for approx. three million tons. Throughout Germany the rewetting of degraded peatlands has therefore become an interesting climate protection policy. If one hectare of fens rewetted, then the yearly savings in emissions is an average of 10.4 tons of CO_2 equivalents. Thus fenland conservation is also becoming interesting from a financial perspective. There is also the European Emissions Trading System, legally determined by the European Union in 2005. "It is only really worthwhile participating in the international trade with emission certificates through a fenland restoration project, when large expanses of peatlands come into question such as those in Belarus, but the actual principle is also interesting for smaller fenlands such as those in Mecklenburg-Western Pomerania", says UFZ employee Augustin Berghöfer. Consequently, peatland experts from the University of Greifswald together with the Schwerin Ministry of the Environment and the Foundation for the Environment and Conservation have developed a certification standard for a voluntary regional carbon market. Since 2010 companies and private individuals have the opportunity of investing in fenland conservation projects and therefore offsetting their entire greenhouse gas emissions or long-haul flights for example. This does not yet take into account the fact that in addition to reducing emissions a restored peatland also provides other valuable services. This is about to change. In the climate certificates that already exist, scientists now also want to take into consideration the role of peatlands in keeping water clean. An intact fenland for example has great potential in assisting the decomposition of surplus nutrients from fertilizers used in agriculture. Without sufficient water however these natural purification plants cannot function properly. Rewetting them would enable them to work properly again. In the northeast of Germany another interesting aspect is also that the Baltic Sea is affected by nitrate and phosphate loads. Neighbouring states therefore committed themselves in the HELCOM agreement to significantly reduce their nutrient loads into rivers. To complement this, the rewetting of peatlands could be an effective and economic contribution. Yet another economic (!) argument for the return of purple marshlock, sundew and the likes says Bernd Hansjürgens, head of the TEEB DE study. *Kerstin Viering*

Strategies to reduce CO_2 emissions should be supplemented by the meaningful preservation or restoration of carbon sinks in soils, fens and forests. Photo: Sebastian Tilch, UFZ

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Dr. Norbert Röttgen has been the Federal Minister for the Environment, Nature Conservation and Nuclear Safety since October 2009. He was born in Meckenheim in 1965. He studied law at the University of Bonn and has been a member of the German Parliament since 1994.
Photo: Markus Wächter

"WE HAVE TO MAKE A DECISION ABOUT WHAT KIND OF ECONOMIC GROWTH WE WANT"

In June, the follow-up conference to the 1992 Earth Summit in Rio de Janeiro will take place in Brazil. At the moment the financial and economic crisis is dominating the global agenda. Is discussing sustainable policies and a sustainable economy of any relevance under these circumstances?
Absolutely! Making sustainable decisions is more important than ever for policies and the economy. We are clearly overexploiting the carrying capacity of our planet. That is why we must harmonise the social and economic structures and interests of our society with the ecological foundations. Sustainability was firmly established as the guiding principle at the Earth Summit in Rio in 1992. By following this principle, we want to safeguard the natural basis of life for future generations. We have to be clear about this, and we need to resolutely pursue that goal.

At Rio+20 the international community will take stock of the achievements over the past 20 years. In your opinion, what were the greatest accomplishments, or failures, of sustainability policies during that time?
In 2002 the German government adopted the national sustainability strategy, which has been frequently updated ever since. We also publish progress reports on a regular basis – the latest one dating from February of this year. Indicator reports illustrate the developments in core areas of sustainable policies. Municipalities and companies are also developing ambitious sustainability strategies.

Natural capital and ecosystem services are widely accepted as basic requirements for economic activities today. Energy and resource efficiency are key competences of modern business.

The three Rio conventions on climate change, biodiversity and desertification have strongly influenced international environmental policies. In other areas we have made significant progress regarding the protection of the environment and human health. The Strategic Approach to International Chemicals Management (SAICM), for instance, was a decisive step to minimise the burden of hazardous chemicals on the environment and health.
But there is still a lot to do. Achievements in some fields such as the protection of the ozone layer do not change the fact that there is dire need for action in many other policy areas. The mandate for Rio must not be limited to yet more processes. We need concrete agreements, for example on water management, food security, energy and biodiversity. We also need Rio to considerably step up the pace for implementing the agreed targets of global environmental and sustainability policies.

What are your expectations for Rio+20? Will it just be a symbolic event or will it render tangible results?
As I already mentioned, we support action-oriented results at this year's sustainability conference in Rio in order for sustainable development to be realised as a guiding principle in all countries. Developing countries should be given the assistance they need. The transformation to a sustainable economy will be supported through an action-oriented UN Green Economy Roadmap. We need to significantly upgrade the status of the UN organisations in the areas of environment and sustainability – the United Nations Environment Programme in Nairobi and the United Nations Commission on Sustainable Development in New York – in order for them to be able to deal with the current challenges.
Rio will also be about making the actual social and ecological costs of economic activity apparent. That is very important.

We have to make a decision about what kind of economic growth we want. So far, the gross domestic product only describes the sum of all domestically produced revenues. But this figure says nothing about the quality of life or the condition of our environment. As one possibility to balance out these deficits, we champion the development of new indicators.

Science is now playing an important role in policy advice. The international TEEB study is an example where a team of international scientists has studied the economics of ecosystem services and biodiversity and processed the results for different actors. A German version of the TEEB study (Natural Capital Germany) is now being prepared under the lead of the UFZ. Your ministry is funding this study. What impetus do you expect for German economic and environmental policies?

The international TEEB study has given an impressive illustration of the economic dimension and the costs society has to bear for the destruction of ecosystems. It also makes clear that investing in nature conservation is not merely a question of ethics. It is also economically beneficial. Investments are generally more cost effective than repairing damage done or contingency measures.

The aim of the report you mentioned, Natural Capital Germany – TEEB DE, is to highlight the value of our nature and its many services, but also to compile options for safeguarding this value. Healthy ecosystems not only serve to protect species and habitats. They also contribute to lessening the impacts of climate change, improving flood protection, controlling pollution of air and water bodies, or they simply offer recreation. Although legal instruments for nature conservation have been developed in Germany and Europe, we have not been able to halt the loss of valuable habitats and species. We need new cross-sectoral approaches to take better account of nature's services in political and economic decision-making and planning. Natural Capital Germany will provide scientifically founded economic arguments for shifting to a more environmentally sound way of life and economy, and it will set out concrete options. We need to make more efficient use of the various services provided by nature, which we generally use for free and which do not appear on balance sheets.

Interviewers: Doris Böhme and Susanne Hufe

NOTEWORTHY INFORMATION

Rio 2012 – looking back

From 20th to 22nd June 2012 the UN Conference on Sustainable Development will take place in Rio de Janeiro. The conference will not only be held on the 20th anniversary of the UN's Earth Summit, beyond that the Environment Program of the United Nations (UNEP) will also celebrate its 40th birthday, as it was founded at the world's first United Nations Conference on the Human Environment in Stockholm in 1972. At that time however the guiding principle of sustainable development had not yet been incorporated into international policy. This was introduced through the so-called Brundtland Commission, named after its chair, Gro Harlem Brundtland, the former Norwegian Prime Minister. In the eighties this Commission looked into ways of reconciling environmental and development problems in the "north" and the "south" and thereby coined the term of sustainable development. The Earth Summit in Rio de Janeiro in 1992 implemented the institutional framework for sustainable development by adopting the Framework Convention on Climate Change (FCCC), the Convention on Biological Diversity (CBD) and the Agenda 21. There was hope for cooperation on complex global issues, extending far beyond environmental issues and encompassing many dimensions of social development – from food security, population growth and urbanization to equal rights for women. At that time this new hope was sworn as "the spirit of Rio" and the faith in it introduced an entire decade of the large world conferences on biodiversity and climate politics.

A World Council for Biodiversity?

The implementation of international agreements, like for example the CBD, does not only take place at international level, but above all at national, regional and local levels. The interaction between these different levels of decision-making as well as networking between science, politics and civil society is therefore of prime importance. But this is precisely where there is a lack of implementation according to Prof. Dr. Christoph Görg from the Department of Environmental Politics at the UFZ. "A good starting point was the establishment of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in April 2012", according to Görg. He and many other scientists have been in favour of such a new advisory body for years. From their point of view, however, it is important not to limit political advice to scientific analyses and evaluations alone but also to include other types of knowledge in the process. Changes to biodiversity are often first apparent at the local level, and must be addressed there first, including the specific socioeconomic and political contexts. Furthermore, as many scientific and other advisory bodies exist, there is the need to form a network of existing expert committees to avoid duplication. Therefore new forms of co-operation and quality control of scientific and other knowledge forms are required, which would give this new body credibility, accountability and impact on policy.

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Professor Dr. Markus Weitere and Dr. Helge Norf are river ecologists that are using the mobile measuring container MOBICOS (Mobile Aquatic Mesocosms) in conjunction with clams to investigate the impact of global changes on our waters and how these can be managed sustainably. Photo: Michael Uhlmann

SUSTAINABILITY IN RIVERS

Half submerged in the sand and constantly flushed with fresh water, *Corbicula fluminea* seems to be doing well in the aquarium-like containers. The dark, Asian clams that are not quite as big as a one-Euro piece are no longer a rare species in the river Rhine. Since the 1980's this clam originating from China has spread to such an extent that it is assumed to have crowded out other species. It is a different matter in the river Elbe: Although the water quality there has improved significantly, the role of this invasive species is still insignificant. At least for the time being!

If the hypothesis is correct that the clam was only able to establish so well due to the heat emission from power stations along the Rhine, then as a result of climate change there could be a similar destiny for the Elbe. In order to solve this mystery, river ecologists at the UFZ have set up a mobile laboratory on the banks of the Elbe, in which they are able to realistically simulate the impacts of climate change on river ecology." The Asian clams live in our flow channels in real Elbe river water, with the difference that here in our laboratory we are able to alter all of those parameters that we expect will change over the coming decades, such as temperature, nutrient content or pesticide loads. Basically all of those factors that are stress for the organisms", says Professor Markus Weitere. These mobile laboratories bridge the gap between laboratory tests and field observations. This infrastructure is being used along the Elbe at the moment by the Helmholtz Community in the context of the observation network TERENO (TERrestrial ENviromental Observatoria) to investigate the impacts of global change in Germany. Since the containers only need to be set up at a location in close proximity to water with access to electricity, they can also be set up at later dates at other locations to gain new insights into river ecology. The fact that Markus Weitere and his colleagues are interested in this clam has less to do with the clam itself, but more to do with its ecological function and the habitat that it represents: "one could say that river sediments represent the liver of a river, converting a large proportion of material." By comparing these two large rivers it becomes obvious what kind of affect this can have: the water from the river Elbe is on average considerably more cloudy with ten times more algae present than in the Rhine, where the clams filter these out of the water and therefore contribute to reducing unwanted algae in the river and subsequently in the sea.

Functioning ecosystems are not ends in themselves, but rather a question of securing our future through the services that they provide. "River ecology has a lot to do with sustainability", emphasizes the scientist. "It is a question of how we want to manage our rivers on a long-term basis." A sustainable management of rivers is not only a goal of the EU Water Framework Directive requiring great financial efforts from member states. In view of the often forgotten meaning of water it is sometimes also a question of reason. Over 24 million people live in the catchment area of the Elbe between the Sudeten mountains and the North Sea. Many of them live in close proximity to rivers and could be affected by floods or receive drinking water from reservoirs that are hydrologically connected with the river. Rivers are still life veins for entire regions: if they are doing well, then the region will also be doing well and vice-versa. This also applies to areas that are often hidden from sight – like for example the sediments at the bottom of a river. *Tilo Arnhold*

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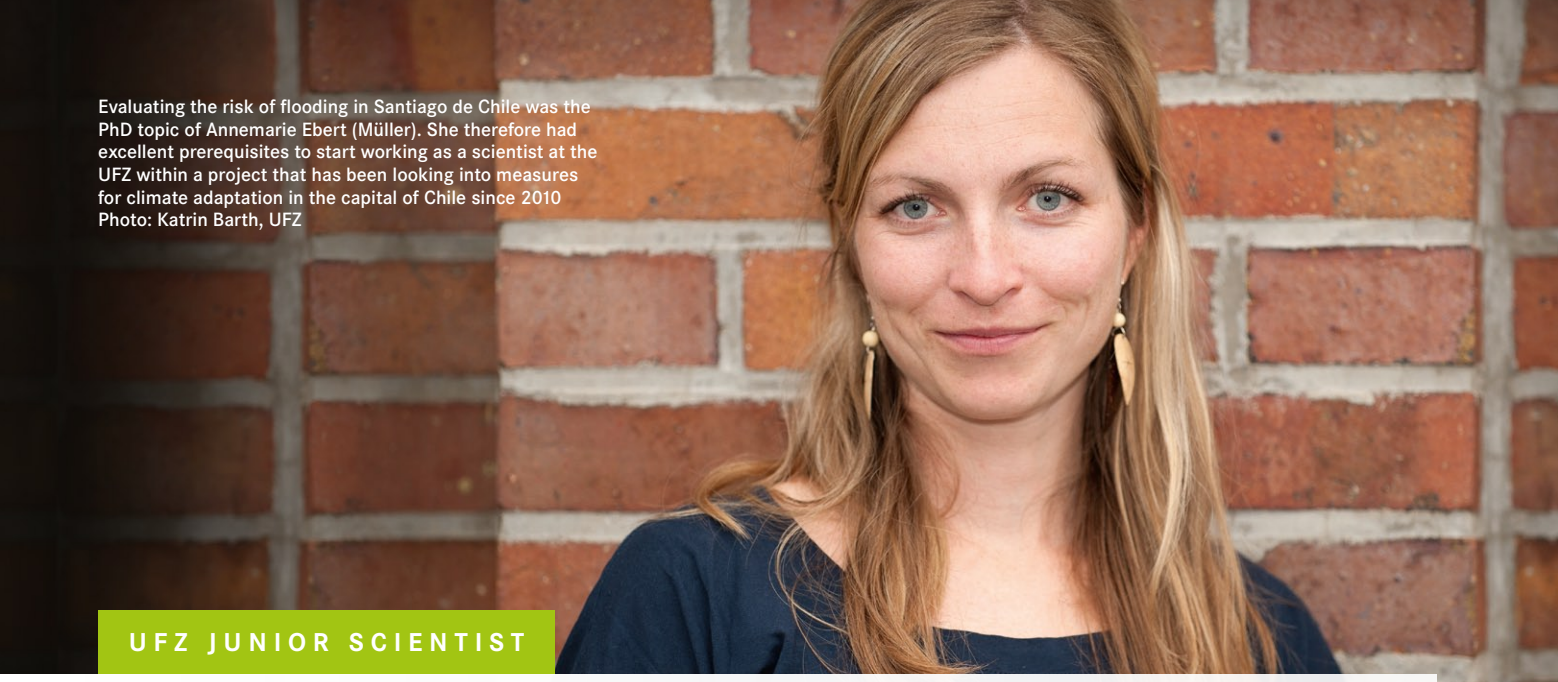

Evaluating the risk of flooding in Santiago de Chile was the PhD topic of Annemarie Ebert (Müller). She therefore had excellent prerequisites to start working as a scientist at the UFZ within a project that has been looking into measures for climate adaptation in the capital of Chile since 2010
Photo: Katrin Barth, UFZ

UFZ JUNIOR SCIENTIST

WORLD TRAVELLER WITH A PASSION FOR LEIPZIG

Her timing with Leipzig was perfect: After completing a geography degree in Jena in 2007 Annemarie Ebert fulfilled her dream of a trip around the world. From an Internet café in New Zealand she applied for a PhD position at the UFZ and in the middle of her trip in China the backpacker received the news that she had been invited to an interview. She had the interview as a Skype videoconference at the Helmholtz office in Peking and was given the position immediately. “It was simply fantastic”, the junior scientist recalls. “I still had six weeks of travelling left with the reassurance that at the end of it I would have an exciting position waiting for me in this wonderful city of Leipzig.”

Since then so much has happened: In the context of her PhD and since 2010 as a scientific employee in the Department of Urban and Environmental Sociology she has been participating in German/Latin American joint research projects, in which scientists from the natural, social and engineering sciences work together with stakeholders to develop scenarios and sustainable solutions for megacities. Since last year for example she has been participating in a project on Santiago de Chile where among other things strategies are being developed for sustainable development so that the six-million megacity can adapt to climate change and the accompanying temperature increase of up to two degrees Celsius that has been forecast. Parts of the Chilean capital for example are affected by flooding once or twice a year. With exceptionally dry weather on most days of the year, it seems hard to believe that floods can occur. “When it does rain however then the amount of areas in the city and the surrounding buffer zones for water to seep into the ground are simply insufficient, to enable such large amounts of water to drain away”, reports the geographer. Her research investigates how natural hazards and risks in the course of city development and climate change can have an affect for example on the course of precipitation and the amount of runoff. The results of her investigations will then be pooled together with those from other project partners: “we are cooperating with two universities, as well as various partners from different levels of decision-making including the Chilean Ministry of Environment, the municipal government and the Economic Commission of the United Nations for Latin America and the Caribbean”, reports the 31-year-old. “If you want to come up with sustainable solutions it is imperative to involve local decision-makers in the process”, she explains. This is quite a challenge. Not only does it mean that the junior scientist has to develop solutions and ideas, where for example it is about introducing a “green area” factor, i. e. a minimum of green areas in districts that are to be built up, but she also needs to discuss (in Spanish) with people from Chile, which measures are feasible. Hence, in addition to improving her specialist knowledge, the project also enables her to perfect her Spanish.

“Along the way” the girl from Gera recently also perfected things in her private life, as you might recognize from her new surname ‘Müller’. Her husband, who also studied geography, works for a Leipzig software company: “they develop the geo information systems that we also use at the UFZ” says Annemarie Müller.
In summer she and her research colleagues will come up with a portfolio of measures for Chile and the project will finish at the end of 2012. The Müllers would like to continue living and working in beautiful Leipzig: “we have settled in nicely here and have even taken on a small allotment garden.” As much as she likes travelling – after the degree thesis on Honduras and the PhD on Chile, Annemarie Müller would now like to use the specialist knowledge that she has acquired from far away countries at home in Germany. With her competences in flood risk analysis, vulnerability studies, urban remote sensing and hydrological modelling she will be an attractive candidate for many different fields of research. *Gundula Lasch*

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NEWSFLASHES FROM THE UFZ

EUBES – COMMUNICATION BETWEEN SCIENCE AND POLITICS

Until the end of 2012 in the context of a contract with the Environment Directorate General of the European Commission, the Dept. of Environmental Politics and the Dept. of Conservation Biology at the UFZ (co-ordination) together with three partners from Spain, the UK and Belgium are investigating how communication between science and politics on biodiversity and ecosystem services can be coordinated more effectively in Europe. The contract was granted against the background of the recently established Intergovernmental Platform on Biodiversity and Ecosystem services (IPBES).The project directly supports the implementation of the European biodiversity strategy, where Member States will map and assess ecosystems and their services.

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APPEAL – BIODIVERSITY AND BIOLOGICAL PEST CONTROL

In January 2012 the BiodivERsA-project APPEAL was initiated (Assessment and valuation of Pest suppression Potential through biological control in European Agricultural Landscapes). Until December 2014 three teams of scientists from Sweden (coordination), Austria and Germany will investigate the relationships between land use-related biodiversity and food web interactions between beneficial organisms, pests and alternative prey. Moreover, they are also investigating economic aspects of biological pest control. The focus of this project's research at the UFZ is on monetary and non-monetary valuations of this service and on mathematical-statistical food web analyses.

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CONNECT – BIODIVERSITY AND ECOSYSTEM SERVICES

The biodivERsA project CONNECT, which is funded by the BMBF until the end of 2014, involves scientists from the UFZ Departments of Economics and Computational Landscape Ecology. Together with four other institutes from the Netherlands (coordination), Spain, France and Sweden they will analyse the conservation of biodiversity and the associated synergies and conflicts from the provision of ecosystem services. The interdisciplinary team of ecologists, economists and political scientists will recommend suitable policies for the conservation of biodiversity. The focus of the work undertaken at the UFZ is to identify the optimal provision of different ecosystem services from an ecological and economic perspective and to provide recommendations for existing policy instruments.

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Photo: Doris Böhme, UFZ

Night owls and research fans are in for a treat in the summer of 2012 as on three separate occasions and in three different cities, the UFZ will be represented from 18:00 to 24:00 at the long nights of science in Magdeburg (2nd June), Leipzig (29th June) and Halle (6th July). Furthermore, the UFZ is also on board the MS Science, "a floating science center", that will be travelling down German rivers from the end of May to the middle of October and stopping in 35 cities along the way. **www.wissenschaft-im-dialog.de**

JOINT APPOINTMENT FOR CLIMATE POLITICS RESEARCH

Photo: Tobias Hametner

Jointly with the UFZ, the European University Viadrina in Frankfurt (Oder) has appointed Reimund Schwarze as professor in international environmental economics. Institutional economic research on climate politics will be the main work focus of the new chair. The chair strengthens Viadrina's international network RECAP15 that analyses first mover advantages and other trust creating mechanisms for international negotiations in a trans-disciplinary framework of policy advice. It is cooperating with the Climate Service Center of Germany (CSC), the UFZ and research institutions in Australia, Spain and the United States.

MEETINGS

In June Professor Bernd Hansjürgens, study leader of TEEB DE will hold a presentation for the general public on the project 'The natural capital of Germany – TEEB DE' in the Federal Ministry of the Environment in Berlin. In addition to representatives from different scientific institutions, employees from authorities and institutes and different policy-making bodies as well as the media are expected to attend.

From 16th to 19th June 2012, directly before the Rio+20 Conference, more than 1000 scientists will meet from over 70 countries at the ISEE 2012 Conference in Rio de Janeiro. The focus of the discussions will primarily be topics of Rio+20 like for example Green Economy and Governance. The UFZ will be represented by five scientists from different departments and will present projects from the field of ecological economics for discussion. Some of them will also go on to participate in the UN Summit.

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