

# Centre for Econics and Ecosystem Management

## Report 2016



February 2017

Centre for Econics and Ecosystem Management  
at Eberswalde University for Sustainable Development  
Alfred-Moeller-Str. 1  
16225 Eberswalde, Germany

### ***The academic***

## **Centre for Econics and Ecosystem Management**

In June 2011, the Centre for Econics and Ecosystem Management was launched as a joint initiative of Eberswalde University for Sustainable Development (HNEE), Germany, and Writtle College, now Writtle University College, UK. Both parent institutions are specialized in sustainability, conservation and rural development sciences. The Centre was established as a consequence of an intensive long-term collaboration (since 2005) between **Pierre Ibisch**, Professor for Nature Conservation at the Faculty of Forest and Environment, HNEE, and **Peter Hobson**, Reader in Biodiversity Conservation & Sustainability at Writtle University College. It was also a result of the first research professorship awarded to Prof. Ibisch in 2009 (“Biodiversity and natural resource management under global change”). Dr. Hobson actively participates in academic activities at Eberswalde University for Sustainable Development by contributing to the delivery of *Global Change Management* (M.Sc.) and *International Forest Ecosystem Management* (B.Sc.).

**The aim of the Centre is to develop internationally relevant research and applied scholarly activities through collaboration between the two parent institutes and with sector organizations.** The philosophy underpinning the activities of the Centre is based on the principles of “economics” and is best described as the promotion of sustainable ecosystem-based sustainable development by applying ecosystem theory and principles of non-equilibrium thermodynamics. The principal objectives of the Centre are to:

1. Carry out applied and pure research about econics and ecosystem management
2. Build partnerships with the ecosystem management sector through applied research, advice and professional training
3. Deliver high-quality teaching informed by original research and curriculum development and provide career opportunities for students and alumni
4. Contribute to the profile, prestige, visibility, and internationalization of both higher education institutes.

The Centre is run by the co-directors Pierre Ibisch and Peter Hobson with the support of the advisory board currently formed by Uli Gräbener (CEO of Michael Succow Stiftung) and Sascha Müller-Kraenner (CEO of Deutsche Umwelthilfe).

From February 2017 onwards **Martin Welp**, professor for socioeconomics and communication at the Faculty of Forest and Environment, HNEE, is joining the Centre. He is head of the M.Sc. Global Change Management, holds a research professorship and is especially interested in stakeholder dialogues and participation under global change.

### **Centre for Econics and Ecosystem Management e.V.:** ***a registered society for the support of the academic Centre***

In October 2013, the Centre for Econics and Ecosystem Management e.V. was formally established as a registered society under German law. The registered society supports the activities of the academic Centre with complementary opportunities and resources, e.g. through the provision of consultancy services.

Currently, there are 8 active society members:

	<b>Name</b>	<b>Organization</b>
1	Peter Hobson*	Writtle University College
2	Pierre Ibisch*	Eberswalde University for Sustainable Development
3	Christoph Nowicki*	Eberswalde University for Sustainable Development
4	Stefan Kreft	Eberswalde University for Sustainable Development
5	Sascha Müller-Kraenner	Deutsche Umwelthilfe
6	Gideon Spanjar	Writtle University College
7	Marcus Waldherr	Eberswalde University for Sustainable Development
8	Uli Gräbener	Michael Succow Stiftung

\* members of the board

## Research portfolio

The Centre's research activities are focused on ecosystem management underpinned by an approach termed 'economics'. **Economics** means studying the dynamics and functioning of (complex and holarchically nested) ecological systems with the aim of deriving sustainable management solutions for natural resource-dependent socio-economic systems.

The Centre continues to focus much of its efforts on developing conceptual frameworks and principles of applied science within the wider context of ecosystem and complex systems theories, and ideas of non-equilibrium thermodynamics that can be applied to conservation planning and sustainable management of ecosystems. The current interrelated themes of research are:

### **Conservation management planning for landscapes and conservation sites, and adaptive management under global change**

Human-induced factors that contribute to climate change together with land use practices are considered to be the main drivers of biodiversity loss and change. Over the last years, staff at the Centre has been working on conservation planning projects for protected areas and ecosystems in Central America, South America, Namibia, Europe as well as Central and East Asia. Special emphasis is given to biosphere reserves, transboundary conservation sites and – in terms of ecosystem types – to forests. The practical component of this work has involved the development and application of **MARISCO**, a conservation management planning process that integrates risk and vulnerability management. It is an approach derived from CMP's *Open Standards for the Practice of Conservation* grounded in ecosystem theory and the corresponding Ecosystem Approach ([www.marisco.training](http://www.marisco.training)). This includes a strong component of active participation and empowerment of (local) stakeholders.

### **Ecosystem-based assessment of effectiveness of sustainability certification**

A special and relatively new field of applied research is related to the assessment of the ecological effectiveness of conservation activities and sustainability standards. MARISCO was the starting point for the development of a corresponding practical methodological approach called **ECOSEFFECT**.

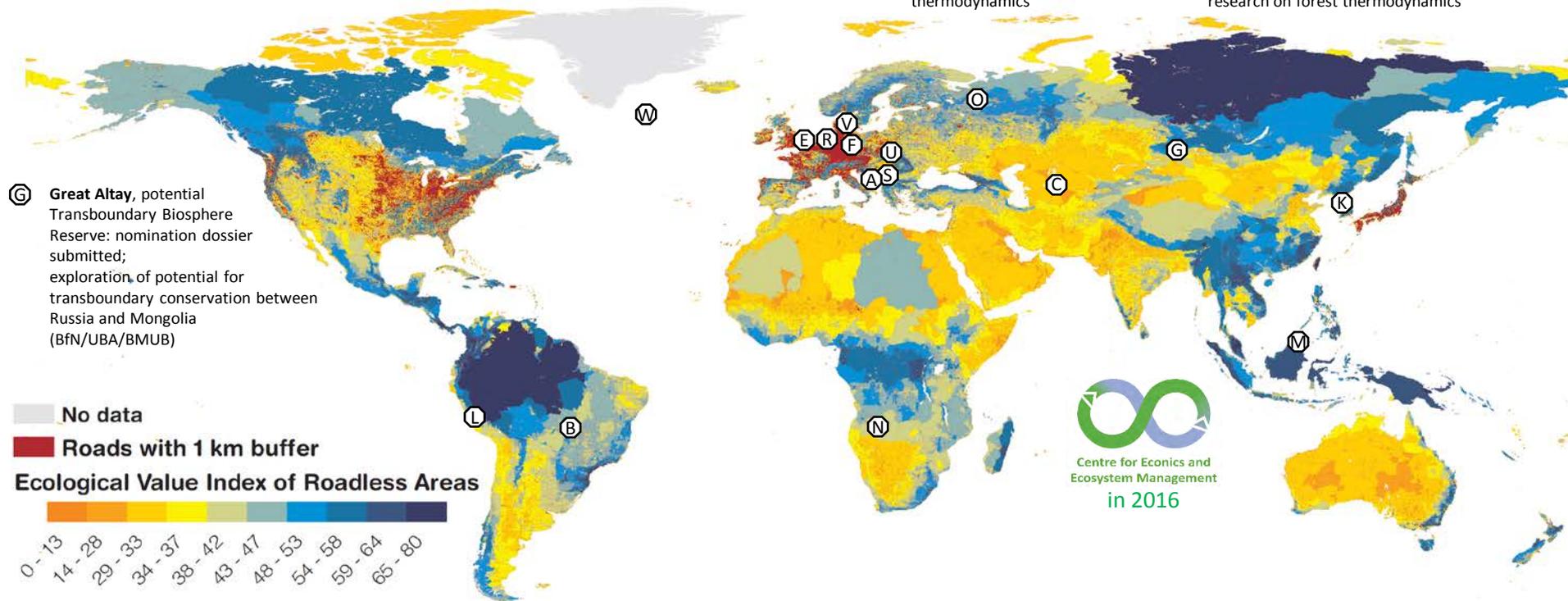
### **Applying principles and theories of non-equilibrium thermodynamics and complex systems to global ecosystems and landscapes**

The composition and function of ecosystems is too complex to represent or describe using conventional ecological concepts and methods of investigation. Scientists use relatively simple laws of physics such as relativity and thermodynamics to explain natural phenomena. This has only recently reached the domain of ecologists and conservation scientists. Staff at the Centre for Ecomics and Ecosystem Management is working on quantifiable measures of 'non-equilibrium thermodynamics' to assess aspects of ecosystem function, in particular, ecosystem resilience, at multiple scales. Examples of research carried out include microclimatic and vegetation functional analysis in a range of landscapes. It also comprises the use of spatial metadata and global indices to generate proxy indicators of ecosystem functionality that can be applied to conservation planning.

### **Assessments of threats to ecosystem functionality**

To help support the process involved in conservation planning and sustainable management of landscapes we try to assess systemically relevant threats to biodiversity. A special focus and strand of activities is related to the significance of roadless areas for the functionality of ecosystems. In this case there exists a tight cooperation with the European and other sections of the Society for Conservation Biology. A notable outcome of this long-term cooperation was the publication of a Research Report in Science ([www.roadless.online](http://www.roadless.online)).

- A** **Albania:** Course on adaptive conservation management with Tirana University (with ERASMUS/DAAD)
- B** **Brasil:** MARISCO manual is published in Portuguese (by GIZ)
- C** **Chorasmia** (historical oasis landscape along the Amu Darya river, Uzbekistan/Turkmenistan): MARISCO workshop (with Michael Succow Stiftung)
- E** **England:** Teaching at Writtle University College; MARISCO training workshop for staff of Essex County; publication on Chalara-induced ash dieback; research on ecosystem thermodynamics
- F** **Federal State of Brandenburg, Germany:** Teaching activities and events in Eberswalde; MARISCO *Training-of-Trainers workshop* in Chorin (with GIZ, BfN, Schorfheide Chorin Biosphere Reserve); Participatory Landscape Framework Plan for Barnim County (DLR/BMUB) – [www.natuerlich-barnim.de](http://www.natuerlich-barnim.de); research on forest thermodynamics



- G** **Great Altay, potential Transboundary Biosphere Reserve:** nomination dossier submitted; exploration of potential for transboundary conservation between Russia and Mongolia (BfN/UBA/BMUB)
- K** **Korea:** Towards supporting Biosphere Reserves of the Mountain Ecosystems of the Korean Peninsula; workshop in Beijing, China (with FAO and others)
- L** **Lima, Peru:** Participation in congress of UNESCO Biosphere Reserves, presentation of Great Altay project, among others (with UBA/BfN/BMUB)
- M** **Malaysia:** Analysis of ecological effectiveness of sustainability standards in palm oil production (ECOEFFECT), Sabah, Borneo (with WWF Germany/ Sabah)
- N** **Namibia:** Delivering results of MARISCO exercise with Conservancies in the Kavango region; production of video (with GIZ)
- O** **Oblast of Archangelsk, Russian Federation:** Analysis of FSC Russia, ECOEFFECT (with WWF Germany/Russia/Northern Arctic Federal University named after M.V. Lomonosov in Archangelsk)
- R** **Rotterdam, Netherlands:** Participation in Adaptation Futures Congress (ecosystem-based adaptation; MARISCO)
- S** **Sharr Mountains, in Kosovo and Macedonia, Balkans:** MARISCO student workshop at University of Prishtina for transboundary conservation; GIS course and support of curricula development
- U** **Ukraine:** Workshop on participatory forest ecosystem management at Ukrainian National Forest University in Lviv, at Carpathian Biosphere Reserve and in Eberswalde (with DAAD)
- V** **Isle of Vilm, Germany:** International workshop for exchange and further development of European Beech Forest Network (with BfN, among others)
- W** **World:** Global map of Roadless Areas published in Science (with Society for Conservation Biology, among others) – [www.roadless.online](http://www.roadless.online)

## Accomplished and running projects with third-party funding (implemented through HNEE)

Project title	Duration	External funding (€)	Donor/funding or financing institution	Status
Assessing the ecological effectiveness of Forest Stewardship Council (FSC) in Archangelsk, Northwest Russia	2013-2018	159,534	World Wide Fund For Nature Germany (WWF)	Under implementation (2013-2016 theoretical phase; 2017-2018 empirical phase)
Research and Development Project "Importance of forests in the Russian Federation as a carbon sink and storage on a global scale and for ecosystem-based adaptation to climate change"	2014-2016	38,000	BfN	Concluded
Participatory and ecosystem-based Adaptation to Climate Change in the county of Barnim – Landscape Planning as a Communication and Development Process	2015-2017	233,509	BMUB	Under implementation
Beech Forest Network of Europe	2015-2017	96,670	BMUB	Under implementation
Capacity building and networking actions in the Baekdu Daegan region (Korea)	2015-2016	61,254	Food and Agriculture Organization of the United Nations (FAO)	Under implementation
ERASMUS mobility with Western Balkan	2015-2017	79,017	DAAD/ERASMUS	Under implementation
Civil society's participation in sustainable forest management	2016	37,855	DAAD	Concluded
Steps towards the establishment of a quadrilateral biosphere reserve in the Great Altay – supporting the Russian Federation and Mongolia to set up steps for the establishment of a joint biosphere reserve	2016-2017	30,065	BMUB	Under implementation
ERASMUS mobility with countries from the Eastern Partnership	2016-2018	74,260	DAAD/ERASMUS	Under implementation
Transboundary cooperation for ecosystem-based sustainable development as contribution to conflict prevention in Eastern Europe	2017	42,250	DAAD	Under implementation
Ecological and economic assessment of conservation measures integrated into forest management safeguarding ecosystem services and the functionality of the forest ecosystem – "Glassy forest" (with Brandenburg state forestry and NABU)	2017-23	323,479	DLR/ BMBF	Under implementation

The Centre for Ecnics and Ecosystem Management e.V., the registered society, financially contributed 18,000 € to the academic Centre (funding for assistant position).

The registered society provided services to GIZ (training course for trainers in Germany, advice to project in Nambia, production of a video on MARISCO), Federal Environment Agency - Umweltbundesamt (presentation in Lima), Eberswalde University for Sustainable Development (e.g. organisation of the module on sustainable development), Montenegrin Ecologists Society (advice to vulnerability assessment of Buljarica Cove, Montenegro), REC/University of Prishtina (contribution to transboundary project on Sharr mountains with Macedonia), Michael Succow Foundation (MARISCO workshops in Uzbekistan), and Barnim county.



**Peter Hobson (with Gloria Gammer) recording text for video on Roadless Areas paper in Science.**

Video produced by *rainbowwarrior*

Compare:  
<https://www.youtube.com/watch?v=16KPFVs1P8U>

## MARISCO method



We continue applying and developing the MARISCO methodology (Adaptive **MAN**agement of vulnerability and **RISK** at **CO**nservation sites - [www.marisco.training](http://www.marisco.training)). MARISCO facilitates the integration of a dynamic risk and vulnerability perspective into the management of conservation projects and sites. It represents a toolbox and an approach to adaptive ecosystem-based management and was also presented at two major conferences. In 2016, together with GIZ, BfN and Schorfheide Chorin Biosphere Reserve, we ran the first Training-of-Trainers workshop, which was well attended by participants from various continents.

A key partner in the development of the method is the German development agency *Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH* (GIZ). In 2016, GIZ commissioned another mission to Namibia for supporting communal wildlife conservancies as sites for participatory, community-based biodiversity conservation. GIZ has also funded the production and publication of the Portuguese version of the MARISCO manual (in Brazil) as well as a video. The new MARISCO-based evaluation method called **ECOSEFFECT** has been further developed and tested (<http://www.centreforecons.org/publications-and-products/ecoseffect-method/>).

## MARISCO and Global Change Management

Since winter semester 2015/2016, MARISCO is used in applied teaching of vulnerability assessment and change management modules at Eberswalde University for Sustainable Development. The principal mandatory block modules of the international study programme **Global Change Management** (M.Sc.) that follow the MARISCO work flow are:



### *Human wellbeing and development as result of ecological and social processes and services*

- understand and analyse dimensions of and factors contributing to human wellbeing; elaborate a framework for the analysis of development goals and challenges going beyond a strict dichotomy between factual and value judgements.

### *Fundamentals of systems functionality and change*

- understand emergent properties and unpredictable dynamics of complex systems (including both natural and social systems and their interactions) and the key attributes required for sustainable functioning; conduct exemplary analyses of selected systems' components and functionality and critically discuss analogies and homologies of social and ecological systems.

### *Threats and risks to systems functionality and contributing factors*

- systemically inventory and analyse factors that lead to threats for the functionality of ecological and social systems and therefore for human wellbeing. These embrace, among others, factors from biophysical, socioeconomic and governance domains. The students apply basic knowledge about risk management to the development of future scenarios and identification of risks and blindspots related to the dynamics of the identified threats and their causal factors. They have practiced the assessment of criticality and strategic relevance of stresses, threats and their contributing factors, which make up global change and pose relevant challenges to ecosystem functionality and human wellbeing.

### *Ecosystem Diagnostics Analysis*

- detect and document patterns and processes of anthropogenic ecosystem changes as basis for conceptual modelling, planning and management. The analysis embraces the investigation of both the study of ecological as well as socioeconomic phenomena and their cause-effect relationship.

### *Strategies for change and transformation*

- adopt relevant principles of proactive strategic thinking for complex systems management; understand past and present societal transitions, their underlying patterns and key actors. Furthermore the goal is to evaluate different strategies of transformation governance on different levels and to provide tools to identify high leverage points in different kinds of complex systems.

### *Implementation of change management*

- acquire skills for the initiation and implementation of transitional change. The course aims at laying a foundation for global leadership for purposes of a sustainability transition.

Website of the study programme: <http://www.hnee.de/Global Change Management>

## Selected activities and accomplishments in 2016

Together with the Ukrainian National Forestry University (UNFU) and the Carpathian Biosphere Reserve, in the city of Lviv, Ukraine, the Centre and staff from Eberswalde University for Sustainable Development held a joint workshop on **civil society participation in forest management**. Further participants represented NGOs such as Biosfera (Ushgorod), WWF Ukraine or Michael Succow Foundation. The workshop, which was made possible with funding by DAAD, was continued in the field. The interinstitutional delegation visited State Forestry Enterprises and the Carpathian Biosphere Reserve in Transcarpathia (June 2016).



Colleagues from Ukrainian National Forestry University in Lviv, including Vice rector Prof. Mykola Borys, visiting the Centre and being received by the president of Eberswalde University for Sustainable Development (September 2016)

University lecturers from three Balkan countries visited the Centre for Ecnics and Ecosystem Management and Eberswalde University for Sustainable Development for an exchange about teaching adaptive conservation management (June 2016).

Facilitated by Heinrich Schmauder, Federal Agency for Nature Conservation, a mixed delegation, also including Pierre Ibisch and Anja Krause, Centre for Ecnics and Ecosystem Management, and Hans D. Knapp, Michael Succow Foundation, met **Michail Gorbachev** in his office in Moscow. The visit was realized in the context of a journey to Russia and Mongolia. The goal of the mission was exploring the **potential of further developing the Great Altay Transboundary Biosphere Reserve**, currently proposed to UNESCO by the Republic of Kazakstan and the Russian Federation (September 2016).



The Centre organized an international **workshop on the ecosystem-based sustainable development in the Mountain Ecosystems of the Korean peninsula** and areas of influence (MEKOP). The participants comprised representatives from China, DPRK, Republic of Korea, and Russian Federation (September 2016).



Ecosystem Diagnostics Analysis in Sharr mountains, Kosovo – talking to local people about a recent avalanche disaster and conditions of the local ecosystem



MARISCO workshop on Sharr mountains with students of University of Prishtina, Kosovo

30 experts from 14 countries who are dedicated to ecological research and the conservation of old and free-willed European Beech forest ecosystems gathered on the Isle of Vilm and conducted the second international workshop in this BfN-funded series. It was organised by the Centre for Ecnics and Ecosystem Management. The **European Beech Forest Network** published a resolution calling for the protection of old-growth forests (December 2016).

Centre team leads research report on roadless areas published in Science.

### A global map of roadless areas and their conservation status

Ibisch P.L., Hoffmann M.T., Kreft S., Pe'er G., Kati V., Biber-Freudenberger L., Dominick A. DellaSala, Vale M.M., Hobson P.R., Selva N.

*Science* 16 Dec 2016: Vol. 354, Issue 6318, pp. 1423-1427

“The planet’s remaining large and ecologically important tracts of roadless areas sustain key refugia for biodiversity and provide globally relevant ecosystem services. Applying a 1-kilometer buffer to all roads, we present a global map of roadless areas and an assessment of their status, quality, and extent of coverage by protected areas. About 80% of Earth’s terrestrial surface remains roadless, but this area is fragmented into ~600,000 patches, more than half of which are <1 square kilometer and only 7% of which are larger than 100 square kilometres”.

New website launched: [www.roadless.online](http://www.roadless.online). According to Altmetric the Science paper is one of the top 5% publications with the highest output worldwide. The paper was covered by Washington Post, The Guardian, BBC and in many other print as well as online media and in diverse languages.

## Featured accomplished research: Dr. Juliane Geyer

### Adapting biodiversity conservation management to climate change

Motivated by research needs identified from the literature as well as by deficiencies encountered in practical conservation site planning, Juliane's doctoral thesis pursued an applied approach to adapting conservation to climate change. The overarching objective was to improve the understanding and the armamentarium of integrating aspects of climate change into conservation management planning bridging the gap between science and practice. The thesis was embedded in the joint cooperative doctoral programme **Adaptive Nature Conservation under Climate Change** of Eberswalde University for Sustainable Development, Potsdam University, and Potsdam Institut for Climate Impact Research.

Besides the direct practical applicability of three frameworks developed in the three individual studies, the thesis produced four essential findings that may guide successful adaptation of conservation site management:

- (1) The application of best practice conservation management including approaches like adaptive management provides a sound fundament for facing climate change.
- (2) It is advisable to elaborate on best practice principles and to extend the toolbox of conservation site managers and planners with approaches of proactive risk management, for example, to meet the special requirements of climate change.
- (3) In order to fully account for climate change conservation needs new perspectives.
- (4) The main challenges of adapting biodiversity conservation to climate change are rather of a social nature than ecologically focused.



The thesis concluded, that climate change does not only impact biodiversity and ecosystem functioning, but it also questions the manner and goals of biodiversity conservation in general. Only if conservation systems meet the requirements of best practice planning and management they will be successful in accounting for climate change and adapting to it. Without this necessary fundament all 'new' and climate change-specific strategies might run the risk of failure.



#### Published and submitted articles:

Geyer, J., I. Kiefer, V. Chavez, S. Kreft, N. Salafsky, F. Jeltsch, and P. L. Ibsch. 2011. *Classification of climate-changed-induced stresses of biological diversity. Conservation Biology* 25:708-715.

- ☛ This study explored the impacts on climate change on conservation objects by classifying stresses to biological diversity that are caused directly by global climate change applying a systemic approach and a hierarchical framework.

Geyer, J., L. Strixner, S. Kreft, F. Jeltsch, and P. L. Ibsch. 2015. *Adapting conservation to climate change: a case study on feasibility and implementation in Brandenburg, Germany. Regional Environmental Change* 15:139-153.

- ☛ In this study frequently named options for conservation to adapt to climate change were categorised into three main lines of action and evaluated by practitioners with regard to their feasibility and implementation.

Geyer, J., S. Kreft, F. Jeltsch, P. L. Ibsch (under review) *Assessing Climate Change-Robustness of Protected Area Management Plans - the Case of Germany.*

- ☛ In order to find out to what extent conservation management is already accounting for climate change and how adaptation could be further enhanced management plans of protected areas were analysed with regard to their adoption of eleven principles of climate change-robustness that had been identified beforehand.

## Teaching

The Centre strives for a further integration of applied research and teaching. It continues promoting high-quality teaching informed by original research and ongoing projects. Activities include teaching module in various Bachelor and Master programmes as well as internships at the Centre and thesis supervision.

Eberswalde University for Sustainable Development has recently reformed the curriculum of the international Master study programme *Global Change Management* along the lines of MARISCO by creating modules specific to the various stages of the method, thus building knowledge and learning experience about adaptive and systemically integrated sustainability (p. 6).

Our modules on *Ecosystem Diagnostics Analysis* target to develop the students' capacity to read in the landscape following an criminalistics approach to ecosystem analysis taking into account any evidence about aspects that determine the state of ecosystems or drive their change. A special module in Eberswalde delivers the exploration of the environment of northeast Brandenburg, mostly travelling by bicycle.



Joint symposium of UNFU and HNEE in Lviv also involving student speakers. The symposium was opened by the vice rector Prof. Dr. Nicholas Borys of UNFU

Annual excursion to the Carpathians facilitating international exchange on all levels

The Centre intensifies international and transdisciplinary teaching and learning. A special focus is on Ukraine, and Ukrainian National Forestry University of Lviv has become a strategic partner. In May/June 2016, we developed the 11th annual student excursion to Ukraine, introducing students from Eberswalde University and Writtle University College to *ecosystem and natural resource management in transformation countries*. The studies focused on sustainable development inside and outside UNESCO Biosphere Reserves, namely Roztochya and Carpathian Biosphere Reserves. a special study site was the Carpathian village of Bohdan on the border to Romania. Various lecturers from UK and Germany accompanied the students as well as professors and academic staff of UNFU.

The annual Ukraine excursions in the framework of Pierre Ibsch's modules started in 2006 and were proposed by Lars Schmidt, a former Eberswalde student, who continues accompanying and supporting the field trips.



Luzmila Rosales and Maria Fiedler, students of the international Master programme *Global Change Management* at Eberswalde University for Sustainable Development, won the third prize in the 2016 contest of the 15th round of the GIZ initiative 'Between lecture Hall and Project Work'

### 2016 contest of the 15th round of the GIZ initiative 'Between lecture Hall and Project Work'

22 international student teams had analysed GIZ projects, combined these practical insights with their academic knowledge from university. The top ten finalists were invited to the final Symposium in the GIZ House in Berlin. Luzmila Rosales and Maria Fiedler presented their evaluation of a GIZ project in Peru and called their presentation "Looking at a bigger picture: introducing a systemic approach". The participation in the GIZ contest is integrated in the elective module 'Global change and development' offered by Christoph Nowicki and Pierre Ibsch. This year's coaching of the student groups was provided by Christoph Nowicki. Since our students participate in the contest, they have been regularly amongst the winning teams.

## List of supervised and/or evaluated theses (January 2016-January 2017)

### Doctoral/ PhD theses

**Geyer, Juliane** (cooperative graduate programme *Adaptive Nature Conservation under Climate Change*, with Potsdam University and Potsdam Institute for Climate Impact Research):

**Adapting biodiversity conservation management to climate change**



Evaluation commission at Potsdam University with Juliane Geyer and Profs. Ralph Tiedemann, Jasmin Joshi, Florian Jeltsch (second supervisor), Thilo Heinken and Pierre Ibisch (first supervisor) (from left to right). An external evaluation of the thesis was provided by Prof. Stefan Porembski, Rostock University



Sumedha and Peter Hobson at Essex University

**Konau, Sumedha** (University of Essex)

**Urban green spaces: Bridging cultural, ecological and political planning gaps to make the city of Colombo a leading 'green city'**

**Loiret, Richard** (Université de Versailles/ Université Paris-Saclay)

**Le Bilan écologique. Mesurer la perturbation anthropogénique de l'écosphère et de la biosphère (un bilan de l'anthropocène). Caractériser les voies du développement écologique des territoires**



Evaluation commission of Richard Loiret (middle) at Versailles headed by supervisor Martin O'Connor (second from left)

### Master (M.Sc.)

**Herrmann, Lara Mia** (Global Change Management)

**The non-knowledge map for decisions**

**Hoffmann, Monika** (Forest Information Technology)

**Global assessment of roadless areas**

**Köllner, Gitta** (Global Change Management):

**How can ecosystem services and biodiversity conservation systematically be integrated into the NEXUS management approach? Findings from a case study of a food-energy-environment nexus at Lake Tana, Ethiopia**

**Sandig, Christina** (Global Change Management):

**Die MARISCO-Methode zur Förderung systemischen Denkens im Schulunterricht der Bundesländer Berlin und Brandenburg**

### Bachelor (B.Sc.)

**Güttler, Julia**

(Landschaftsnutzung und Naturschutz)

**Konflikt zwischen Forstwirtschaft und Naturschutz in der Diskussion um die Nationalparkausweisung: Eine Akteurs- und Argumentationsanalyse am Beispiel des nördlichen Steigerwalds**

**Dichte, Angela** (International Forest Ecosystem Management)

**Anwendungsoptionen einer mobilen Monitoring-App für das Landschafts- und Naturschutzmanagement im Landkreis Barnim**



Angela Dichte explaining Monitoring App to first year-Bachelor students during excursion

## Oral presentations and conferences 2016

Research results and products of the Centre for Ecnics and Ecosystem Management have been presented at numerous national and international workshops, conferences and congresses.

In March, Pierre Ibisch and Anja Krause participated in the **4th UNESCO World Congress of Biosphere Reserves** in Lima, Peru. As members of the German delegation they contributed to a series of activities. Pierre Ibisch was on a panel on climate change giving a presentation on the MARISCO methodology and strongly recommending to consider adaptive managment as a crucial approach towards making conservation and sustainable development more effective. On the panel, amongst others, there were also the Ambassador for the Environment of the Republic of France, Xavier Sticker, and the UNESCO Assistant Director General for Natural Sciences, Flavia Schlegel. The German Ministry of Environment has invited the Centre for Ecnics and Ecosystem Management at Eberswalde University for Sustainable Development to present the results achieved together with colleagues from the Russian Federation and Kazakhstan. Before participating in a side event on Transboundary Biosphere Reserves the project was also presented at a poster session.

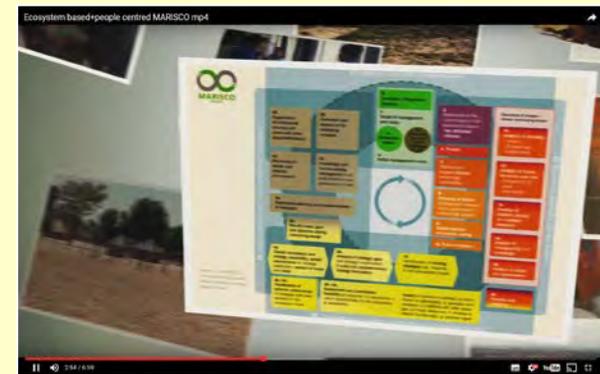
In May Pierre Ibisch, Peter Hobson and Anja Krause attended the **Adaptation Futures 2016** congress in Rotterdam. 1,700 participants from more than 100 countries gathered in search of solutions to adaptation to climate change. The Centre contributed a presentation to a session on ecosystem-based adaptation and disaster risk reduction. The talk was on the MARISCO methodology and case studies of ecosystem-based approaches from Namibia and Barnim county, Germany.

Later in May, Pierre Ibisch and Peter Hobson as well as a delegation of international students from Eberswalde University for Sustainable Development participated in a roundtable discussion organised by the Carpathian Biosphere Reserve in Rakhiv. Further participants represented

academia and various protected areas of Transcarpathia and beyond. The roundtable was dedicated to the celebration of the 45th anniversary of UNESCO's Man and Biosphere Programme.



Valery Neronov (MAB Committee Russian Federation), Tatjana Yashina (Katunskiy Biosphere Reserve), Erlan Mustafin (Katon-Karagay Biosphere Reserve), Roman Jashenko (MAB Committee Republic of Kazakhstan), and Pierre Ibisch in Lima on 16 March 2016



Snapshot of video on MARISCO methodology used for enhancing participation of local stakeholders in vulnerability assessments (produced for and with GIZ in Namibia)

Check out under:

<http://www.marisco.training/resources/videos>

or <https://www.youtube.com/watch?v=j4n8TE4Ewso/>

A special series of events represents the **Eberswalde Sustainability Society** (*Eberswalder Nachhaltigkeitsgesellschaft*). It is a joint initiative of the Eberswalde University for Sustainable Development, represented by Pierre Ibisch with the Centre for Ecnics and Ecosystem Management, the city of Eberswalde, and Heinrich Boell Foundation Brandenburg. They invite three to four times a year in order to discuss current topics related to sustainable development. In 2016, our guests were Barbara Unmüßig (Heinrich Böll Foundation), Sascha Müller-Kraenner (Deutsche Umwelthilfe), Fabian Scheidler (author *Das Ende der Megamaschine*).

## Publications 2016 (and 2015 not covered in last report)

ALBERT, C., C. BERTRAM, L. BIBER-FREUDENBERGER, A. BONN, M. BRECK, B. BURKHARD, J. FORSTER, E. FUCHS, C. GALLER, C. VON HAAREN, P.L. IBISCH, T. KAPHENGST, C. KLASSERT, R. KLENKE, S. KLOTZ, S. KREFT, I. KÜHN, E. MARQUARD, D. MEHL, I. MEINKE, K. NAUMANN, M. RECKERMANN, K. REHDANZ, S. RUTER, W. SAATHOFF, J. SAUERMAN, M. SCHOLZ, U. SCHRÖDER, R. SEPPELT, D. THRAN & F. WITTING (2015): Ökosystemleistungen, Biodiversität und Klimawandel: Grundlagen. In: V. Hartje, H. Wüstemann & A. Bonn (eds.): Naturkapital Deutschland – TEEB DE: Naturkapital und Klimapolitik – Synergien und Konflikte. Technische Universität Berlin, Helmholtz-Zentrum für Umweltforschung – UFZ. Berlin, Leipzig. 68-99.

BARTHLOTT, W., K. BURSTEDDE, GEFFERT, P.L. IBISCH, N. KOROTKOVA, A. MIEBACH, M.D. RAFIQPOOR, A. STEIN & J. MUTKE (2015): Biogeography and biodiversity of cacti. *Schumannia* 7: 208 pp.

### *Included (co-)authored chapters:*

IBISCH, P.L. & J. MUTKE: Conservation and hotspots: cactus diversity in change. 68-81.  
BARTHLOTT, W., K. BURSTEDDE, GEFFERT, P.L. IBISCH, N. KOROTKOVA, A. MIEBACH, M.D. RAFIQPOOR, A. STEIN & J. MUTKE: Distribution maps of Cactaceae. 82-197.

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IBISCH, P.L.: Promotionsrecht an Fachhochschulen: „Ein wissenschaftspolitisches oder ein wissenschaftstheoretisches Problem?“ 19-33, 38-41.  
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### *Included (co-)authored chapters:*

IBISCH, P.L. & P.R. HOBSON: Introduction. 6-9.  
STRICKNER, L., J. Geyer, L. Schmidt, P.R. Hobson & P.L. IBISCH: Ukraine: Carpathian Biosphere Reserve. 10-18.  
GEIGER, L., F. CYBULLA & P.L. IBISCH: Sierra del Lacandón National Park, Maya Biosphere Reserve, Guatemala. 19-28.  
IBISCH, P.L. S. KREFT, C. NOWICKI, Y. WANG, J. JIA, X. LI, B. HU, C. LIAO, P. TANG & Y. ZHANG: Protected areas in Jiangxi Province, China. 29-40.  
SCHICK, A., C. NOWICKI & P.L. IBISCH: Central Peruvian Amazon: communal, provincial and regional biodiversity management within and outside protected areas. 41-58.  
REICHLER, S., P.R. HOBSON & P.L. IBISCH: Case studies in Costa Rica: Cahuita and Manuel Antonio National Parks, where the oceans meet the forest. 59-72.  
SCHICK, A., N. MANASFI, C. NOWICKI, M. FACTOS & P.L. IBISCH: Transboundary management at small scale: the municipal protected areas of Siete Iglesias and Tinajillas-Río Gulaceño in Ecuador. 73-80.  
KREFT, S., D. ASCHENBRENNER, L. STRICKNER, F. CYBULLA & P.L. IBISCH: Case study Germany: diverse MARISCO applications in Brandenburg, north-eastern Germany. 81-92.  
HOBSON, P.R. & P.L. IBISCH: Student-sector MARISCO workshop for Suffolk Coast and heaths project landscape, United Kingdom. 93-98.  
STRICKNER, L., P.R. HOBSON & P.L. IBISCH: MARISCO at a lakescape: student course on Lake Shkoder, Albania. 99-104.

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KRAUSE, A., A. WÜNSCH, U. GOLLMICK, J. KLOIBER, R. KRYKBAEVA, A. GABDULLINA, T. YASHINA & P.L. IBISCH: Introduction. 18-32.  
ANJA WÜNSCH, JUDITH KLOIBER, ANJA KRAUSE, ÜLRIKE GOLLMICK, RAUSHAN KRYKBAEVA, ALJA GABDULLINA, TATJANA YASHINA & PIERRE L. IBISCH: Systemic situation analysis. 33-85.  
ANJA KRAUSE, JUDITH KLOIBER, ANJA WÜNSCH, RAUSHAN KRYKBAEVA, ALJA GABDULLINA, TATJANA YASHINA & PIERRE L. IBISCH: Conservation design and strategies. 86-143  
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ANJA WÜNSCH, ANJA KRAUSE, RAUSHAN KRYKBAEVA, ALJA GABDULLINA, TATJANA YASHINA & PIERRE IBISCH: Outlook. 167-168.

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## Finances 2016

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Currently, since 2015, he holds an extraordinary research professorship for "Ecosystem-based sustainable development".

### **General funding provided by HNEE/Faculty of Forest and Environment to the professorship of nature conservation**

>8,000 € + 50% teaching position (context of research professorship)

### **Third-party funding (projects) implemented through HNEE (see page 5)**

## **Centre for Ecomics and Ecosystem Management e.V.**

### **2015**

Earnings (incl. VAT): 172,921.79 €

Expenses: 168,068.28 €

Annual profit: 4,853.51 € (according to §4 Abs. 3 EStG: 4,933.36)

### **2016**

Earnings: 128,355 € (preliminary)

Accounting and tax advice: B.R.D. Brenke, Ratzlaff, Dammer - Eberswalde

The registered society has been funding the assistant of the Centre, Josiane Lowe, as well as some operational costs and the Centre and MARISCO websites.



Since winter 2016/2017 the Centre for Ecomics and Ecosystem Management resides in the oldest building of the university's forest campus, the so-called *Waldschutzgebäude*. This scientific origins go back to pioneering work in entomology and forest protection (pest management). From now onwards, forest protection will be important again in the time-honoured rooms – but from another perspective and with another goal. May the new infrastructure be equally good for forest conservation and ecosystem management, as well as learning from ecosystems for sustainability.

Check out our webpage for more information and recent news:

[www.centreforecomics.org](http://www.centreforecomics.org)

## Team and collaborators 2016

### Directors

**Pierre Ibisch**, Prof. Dr. (Eberswalde University for Sustainable Development)  
**Peter Hobson**, PhD, Reader (Writtle University College)

### Advisory board

**Uli Gräbener** (Dipl. Biol.; MBA); CEO of Michael Succow Foundation  
**Sascha Müller-Kraenner** (Biology, Public Law, Philosophy); CEO of Deutsche Umwelthilfe

### Fellows

**Gideon Spanjar** (Writtle College): Associated fellow for urban ecomics

### Secretariat

**Josiane Lowe** (B.Sc. International Forest Ecosystem Management)

### Researchers (staff / consultants) and affiliated professionals

**Daniela Aschenbrenner** (M.Sc. Global Change Management): Lecturer in conservation, Faculty of Forest and Environment/Eberswalde; Adaptive conservation teaching in Kosovo and Albania; project development  
**Dr. Kevin Beiler** (Forest sciences): *Participatory and ecosystem-based Adaptation to Climate Change in the County of Barnim* (GIS activities)  
**Jeanette Blumröder** (M.Sc. Global Change Management): *Evaluation of FSC effectiveness (Russia); Evaluation of RSPO effectiveness (Malaysia); Glassy forest (Germany)*  
**Angela Dichte** (B.Sc. International Forest Ecosystem Management): *Participatory and ecosystem-based Adaptation to Climate Change in the County of Barnim (MIRA-App for monitoring)*  
**Dr. Juliane Geyer** (M.Sc. International Nature Conservation): *Adaptation of conservation to climate change; sustainable development*  
**Ulrike Gollmick** (cand. Global Change Management): *Mountain Ecosystems of the Korean Peninsula – Korea*  
**Dr. Sabine Henders**; visiting scientist Linköping University, Sweden: *Sustainability strategies and agricultural commodities' consumption*  
**Monika Hoffmann** (M.Sc. Forest Information Technology): Lecturer and specialist in GIS, *Roadless areas*  
**Liam King** (M.Sc. in Sustainable Land Management) MARISCO and natural capital assets checks for Essex County Council; thermodynamic research on agricultural systems (based at Writtle University College)

**Judith Kloiber** (M.Sc. Sustainable Tourism Management): *Altai projects*

**Anja Krause** (Dipl. Landscape Architecture, cand. M.Sc. Global Change Management): *Participatory and ecosystem-based Adaptation to Climate Change in the County of Barnim; Altai projects*

**Dr. Stefan Kreft** (Dipl. Biol.): Lecturer in conservation, Faculty of Forest and Environment/Eberswalde; *Mountain Ecosystems of the Korean Peninsula – Korea*

**Katharina Lüdicke** (M.Sc. Global Change Management): *Forest ecosystem thermodynamics*

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**Lars Schmidt** (M.Sc. Global Change Management): Lecturer in conservation, Faculty of Forest and Environment/Eberswalde, Freelance consultant - Independent advisory services in: Forest Mitigation (REDD+), Sustainable Forest Management, Adaptive Conservation Management, Project Development and Coordination

**Christina Sandig** (M.Sc. Global Change Management): MARISCO-related activities

**Julia Sauer mann** (M.Sc. Forest Information Technology): GIS activities

**Axel Schick** (Dipl. Biol.): Peru representative of the Centre; MARISCO-related activities and research

**Sara Silva de Oliveira** (M.Sc. Global Change Management): MARISCO-related activities with GIZ in Brazil, sustainability of renewable energies in Brazil

**Lena Strixner** (B.Sc. International Forest Ecosystem Management): *Cooperative Transboundary Learning for Ecosystem Management, Adaptation of nature conservation to climate change in Brandenburg*; Lecturer in conservation, Faculty of Forest and Environment/Eberswalde; project development

**Marcus Waldherr** (M.Sc. Global Change Management): *Beech forest projects; Importance of forests in the Russian Federation*

**Dilfuza Yuldasheva** (cand. Global Change Management): MARISCO-related activities in Usbekistan

### PhD and doctoral candidates

In cooperation with Rostock University:

**Monika Hoffmann** (M.Sc. Forest Information Technology)

**Katharina Lüdicke** (M.Sc. Global Change Management)

**Axel Schick** (Dipl. Biol.)

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