Georg-August-Universität
Göttingen

Graduate School

Göttingen Graduate School of Terrestrial Ecosystems (GGTE)

Funding Period
1. 11. 2007 – 31. 10. 2012

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Proposal for the Establishment and Funding of the Graduate School

Göttinger Graduiertenschule für Terrestrische Ökosysteme

Goettingen Graduate School of Terrestrial Ecosystems (GGTE)

Universität:
Georg-August-Universität Goettingen

President of the host university

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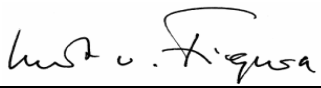
Goettingen, April 2nd, 2007



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Goettingen, April 2nd, 2007

Prof. Dr. Stefan Schütz

Coordinator

Contents

List of abbreviations

BBA	Biologische Bundesanstalt für Land- und Forstwirtschaft
BFH	Bundesforschungsanstalt für Forst- und Holzwirtschaft
BIOPLEX	Biodiversity and Spatial Complexity in Agricultural Landscapes under Global
BMBF	Bundesministerium für Bildung und Forschung
CeTSAF	Centre for Tropical and Subtropical Agriculture and Forestry
CIFOR	Centre for International Forestry Research
DAAD	Deutscher Akademischer Austausch Dienst
DFG	Deutsche Forschungsgemeinschaft
EFRE	Europäischer Fonds für Regionale Entwicklung
ECTS	European Credit Transfer System
ERASMUS	European Community Action Scheme for the Mobility of University Students
EVOLTREE	Evolution of Trees as drivers of terrestrial biodiversity
FAO	Food and Agriculture Organisation of the United Nations
FERC	Centre of Forest Ecosystem Research
FhG-WKI	Fraunhofer-Institute for Wood Research – Wilhelm-Klauditz-Institut
FNR	Fachagentur Nachwachsende Rohstoffe
FOR	Forschergruppe
GAUSS	Georg August University School of Science
GC	Global Change
GCBE	Goettingen Centre for Biodiversity Research and Ecology
GGG	Goettingen Graduate School of Social Sciences
GGNB	Goettingen Graduate School for Neuro- and Molecular Biosciences
GGTE	Goettingen Graduate School of Terrestrial Ecosystems
GSGK	Goettingen Graduate School of Humanities
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IAI	Inter-American Institute for Global Change Research
ICARDA	International Centre for Agricultural Research in Dry Areas
IFPRI	International Food Policy Research Institute
IFSA	International Forestry Student Association
IPAG	International Programme for Agriculture Science in Goettingen
NHN	Kompetenznetz für Nachhaltige Holznutzung
NW-FVA	Nordwestdeutsche Forstliche Versuchsanstalt
RTG	Research Training Group
SFB	Sonderforschungsbereich
STORMA	Stability of Rainforest Margins in Indonesia
X-LAB	Goettinger Experimental Laboratory for young people registered association
ZfI	Zentrum für Informatik
ZfS	Zentrum für Statistik

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1 Key data

1.1 Principal Investigators

Surname, first name, academic title	Year of birth	Institute	Research area			
			EF	EP	ES	GC
Becker, Heiko C., Prof. Dr.	1950	Section Plant Breeding – Department of Crop Sciences – Faculty of Agricultural Sciences				
Beese, Friedrich, Prof. Dr.	1943	Institute of Soil Science and Forest Nutrition – Faculty of Forestry and Forest Ecology				
Finkeldey, Reiner, Prof. Dr.	1962	Institute of Forest Genetics and Forest Tree Breeding - Faculty of Forestry and Forest Ecology				
Herrmann, Bernd, Prof. Dr.	1946	Department of Historical Anthropology and Human Ecology – Johann-Friedrich-Blumenbach-Institute of Zoology and Anthropology – Faculty of Biology				
Hölscher, Dirk, Prof. Dr.	1964	Section Tropical Silviculture – Institute of Silviculture – Faculty of Forestry and Forest Ecology				
Isselstein, Johannes, Prof. Dr.	1959	Section Grass Agriculture – Department of Crop Sciences – Faculty of Agricultural Sciences				
Kessler, Michael, Dr. Privatdozent	1967	Section Systematic Botany – Albrecht-von-Haller-Institute of Plant Sciences – Faculty of Biology				
Klasen, Stephan, Prof. Dr.	1966	Section Development Economics – Department of Economics – Faculty of Economics				
Kleinn, Christoph, Prof. Dr.	1960	Section Forest Inventory and Remote Sensing – Institute of Forest Management - Faculty of Forestry and Forest Ecology				
Kreisel, Werner, Prof. Dr.	1944	Section Social and Cultural Geography – Institute of Geography – Faculty of Geosciences and Geography				
Krott, Max, Prof. Dr.	1955	Section Forest Policy and Nature Policy – Institute of Forest Politics - Faculty of Forestry and Forest Ecology				
Kües, Ursula, Prof. Dr.	1958	Section Molecular Wood Biotechnology – Institute of Forest Botany - Faculty of Forestry and Forest Ecology				

Surname, first name, academic title	Year of birth	Institute	Research area			
			EF	EP	ES	GC
Leuschner, Christoph, Prof. Dr.	1956	Section Ecology and Ecosystem Research – Albrecht-von-Haller-Institute of Plant Sciences – Faculty of Biology				
Marggraf, Rainer, Prof. Dr.	1949	Section Environmental and Resource Economics – Department of Agricultural Economy and Rural Development – Faculty of Agricultural Sciences				
Militz, Holger, Prof. Dr.	1960	Section Wood Biology and Wood Products – Institute of Wood Biology and Wood Technology - Faculty of Forestry and Forest Ecology				
Polle, Andrea, Prof. Dr.	1956	Section Tree Physiology and Forest Botany – Institute of Forest Botany – Faculty of Forestry and Forest Ecology				
Qaim, Matin, Prof. Dr.	1969	Institute of International Food Economics and Rural Development, Faculty of Agricultural Sciences				
Reitner, Joachim, Prof. Dr.	1952	Section Geo-Biology – Centre for Geosciences – Faculty of Geosciences and Geography				
Schlather, Martin, Prof. Dr.	1968	Institute of Mathematical Stochastics and Centre for Statistics – Faculty of Mathematics				
Schlecht, Eva, Prof. Dr.	1965	Section Animal Husbandry in the Tropics and Subtropics – Institute of Animal Breeding and Genetics – Faculty of Agricultural Sciences				
Schütz, Stefan, Prof. Dr.	1964	Institute of Forest Zoology and Forest Conservation – Faculty of Forestry and Forest Ecology				
Stoll, Peter-Tobias, Prof. Dr.	1959	Section International Economic and Environmental Law – Institute for International Law and European Law – Faculty of Law				
Tscharntke, Teja, Prof. Dr.	1952	Section Agroecology – Department of Crop Sciences – Faculty of Agricultural Sciences				
Veldkamp, Edzo, Prof. Dr.	1965	Section Ecopedology of the Tropics and Subtropics – Institute for Soil Science and Forest Nutrition – Faculty of Forestry and Forest Ecology				
Vidal, Stefan, Prof. Dr.	1950	Section Agricultural Entomology – Department of Crop Sciences – Faculty of Agricultural Sciences				

Note: EF= Ecosystem Functions; EP= Ecosystem Products; ES= Ecosystem Services; and GC= Global Change

1.2 Estimated number of participating doctoral candidates

GGTE expects a total number of more than 300 PhD students, corresponding to an average total of over 80 admissions per year. The Graduate School will support 44 PhD students with scholarships. 22 doctoral candidates will be funded through the GGTE for the first three year period. Another 22 grants are planned for the second period running from year three to year five.

1.3 Brief summary

The Georg-August University of Goettingen has a long-standing, internationally recognized reputation in terrestrial ecosystem research. The unique constellation of three life sciences faculties (Biology, Agriculture, and Forest Sciences), geosciences, mathematics, informatics, social sciences, humanities and law generates a stimulating, multidisciplinary environment for PhD students in this field. The proposed **Goettingen Graduate School for Terrestrial Ecosystems - GGTE** will provide internationally leading programmes for research-based education of outstanding PhD students. GGTE will offer excellent training in ecosystem functioning, products and services to address the challenges of rapid change in global economy and environment. A focus will be on managed ecosystems, due to the specific profile the University. However, GGTE is open for additional third-party funded programmes in any kind of terrestrial ecosystem research. GGTE will use the regulations of Goettingen's approved graduate schools in natural and social sciences. GGTE will form the platform base for nine PhD programmes and will be complemented by six new programmes (two of which funded by GGTE). By fostering interdisciplinary training, GGTE adds novel dimensions to existing university schools in seminal areas. GGTE builds on:

- excellent research environment
- efficiently structured interdisciplinary training
- new interdisciplinary and faculty-spanning PhD programmes
- training in professional skills
- advice by an external board of scientists and company representatives.

With the goal to educate the academic and professional high potentials of tomorrow, GGTE creates opportunities for PhD students to assume responsibilities, develop governance skills and train intercultural competence. Internships and short term research stays will be available at collaborating organisations (industries, consultants, NGOs). PhD grants will be internationally advertised and applicants will undergo a rigorous selection process. Successful candidates will be supervised by thesis committees and strongly encouraged to submit a cumulative dissertation. Families/women will be supported by specific measures. Funding of GGTE will be used to achieve the outlined structural changes and to increase excellence and international visibility in areas addressing the most important problems of the 21st century.

Zusammenfassung

Die Georg August Universität Göttingen zeichnet sich im Bereich der terrestrischen Ökosystemforschung durch eine hohe nationale und internationale Reputation aus. Die einzigartige Konstellation von drei Fakultäten der Lebenswissenschaften – Agrarwissenschaften, Forstwissenschaften, Biologie – bilden zusammen mit den Geowissenschaften, der Mathematik und Informatik sowie den Geistes- und Gesellschaftswissenschaften ein exzellentes Umfeld für interdisziplinäre Forschung und Ausbildung. Die beantragte **Göttinger Graduiertenschule für Terrestrische Ökosysteme – GGTE** setzt auf strukturierte forschungsbasierte PhD-Studiengänge, deren Programme und Forschungsprojekte Funktionen, Produkte und Serviceleistungen von Ökosystemen unter dem Aspekt globalen Wandels adressieren. Ein Fokus der beantragten Schule liegt - entsprechend dem Profil der Universität - auf bewirtschafteten Ökosystemen. GGTE ist darüber hinaus offen für weitere auf terrestrische Ökosysteme ausgerichtete Programme. GGTE ist eingebunden in die drei bereits etablierten Göttinger Graduiertenschulen und fasst 15 PhD-Programme zusammen, darunter sechs geplante, zwei davon werden von GGTE finanziert. GGTE basiert auf

- ausgewiesener Exzellenz der beteiligten Forschungsbereiche
- effizient strukturierten Ausbildungsprogrammen
- neuen interdisziplinären, fakultätsübergreifenden PhD Programmen
- einer Ausbildung in sozialen und wirtschaftlichen Kompetenzbereichen
- einer Qualitätskontrolle durch ein externes Advisory Board mit Repräsentanten aus Wissenschaft und Wirtschaft.

Kennzeichnend für das Ausbildungsprogramm sind neben der Auswahl der Doktoranden und Doktorandinnen in einem kompetitiven Verfahren, die Betreuung durch ein Thesiskommittee, interdisziplinäre Seminare, spezifische Methodenkurse, Workshops zur Entwicklung von Führungsqualitäten und interkultureller Kompetenz sowie der Aufbau von Netzwerken durch Praktika in Partnerorganisationen. GGTE Doktoranden sind in die Gestaltung der Schule eingebunden. Für Frauen und Familien sind besondere Fördermaßnahmen vorgesehen. Die beantragte Förderung wird eingesetzt, um diese strukturellen Änderungen zu erreichen und dadurch Forschungsaktivitäten und internationale Sichtbarkeit in einem Bereich zu steigern, der sich den wichtigsten Problemen des 21sten Jahrhunderts widmet.

2 Academic profile

The proposed Goettingen Graduate School for Terrestrial Ecosystems will provide an internationally leading platform for research-based education of graduate students in the field of terrestrial ecosystem research and management. Recent evaluations of teaching and research in environmental sciences (*Wissenschaftliche Kommission Niedersachsen*) and of agriculture and forestry (German Science Council) yielded top results for Goettingen. Indicator-based rankings of DFG, DAAD and Alexander von Humboldt foundation emphasise the leading position of Goettingen in this field. Excellent training capacities on the functioning and sustainable use of products and services of ecosystems are urgently needed to meet the extraordinary challenges mankind is facing by the rapid change of the global environment and its economic and ecological systems. GGTE builds on the long-standing internationally recognised reputation of the University of Goettingen in terrestrial ecosystem research and its existing unique research potential with three life sciences faculties (Biology, Agricultural and Forestry Sciences).

Key elements of the proposed GGTE are a family of nine modular MSc/ PhD programmes providing cutting-edge research training courses in the field of basic and applied ecosystem research. GGTE's training programmes (I) will be interdisciplinary, (II) have a close relation to Global Change issue, (III) will be tightly linked to practical training in international environmental institutions and (IV) will involve the training of professional skills. We are confident that GGTE will further increase the reputation of the University of Goettingen as being one of the very few excellence centres for ecosystem research worldwide.

2.1 Academic aims

2.1.1 Introduction

Human impact on the natural environment has resulted in several severe global environmental problems, most importantly climate change, global biodiversity loss, large-scale eutrophication, acid deposition and shortage of drinking water. All these threaten the life-supporting capacity of the biosphere (Vitousek et al., 1997). The complexity of these challenges requires an integrated research approach including natural and socio-economic sciences and covering various spatial and temporal scales (Hedin et al., 2002). GGTE will adopt a systems-oriented approach to identify and optimise strategies for the sustainable use of natural resources which can meet the demand of recent and future generations. Principal goals are the following.

- A better understanding of the functioning of managed and natural ecosystems is needed. In particular, hypotheses on the stability and resilience of ecosystems have to be developed and tested. Using experiments in combination with advanced

modelling approaches, this analysis requires contributions by basic scientific disciplines such as microbiology, botany, zoology, ecology, genetics, geobiology, soil science, bioclimatology and ecological modelling.

- Technological answers to the currently changing environmental setting and human needs are sought. In addition to the disciplines mentioned above, GGTE includes expertise from disciplines such as agronomy, silviculture, forest tree and crop breeding, animal husbandry and wood biology. They focus on the sustainable production of food and biomass, but also non-timber forest products such as biofuel. Development of innovative ecosystem products in environmentally-friendly production processes requires high-tech approaches that are sought by disciplines such as wood technology and biotechnology.
- The threat to ecosystem stability urges for scientifically-based guidelines for political actions to maintain the functioning of our ecosystem. This concerns particularly ecosystem services that are usually not converted to commodities, for instance, soil and water protection, carbon sequestration, conservation of biodiversity or pest control. Research into the economic, social and cultural aspects of land use, production technologies and monetary valuation of ecosystem services is conducted by disciplines such as development and food economics, environmental and resource economics, environmental history, cultural geography and international law.
- The complexity of the natural-socio-economic earth system with its manifold feedbacks and opposing human goals requires a broad interdisciplinary research strategy. GGTE tackles this challenge with respect to terrestrial ecosystems by integrating research approaches from socio-economic and natural sciences in order to analyse land use conflicts. Therefore, disciplines such as silviculture, crop and tree breeding, remote sensing, ecosystem modelling und eco-informatics, social and cultural geography, forest and development policy and environmental law are included as well.

2.1.2 Research Areas covered by the graduate school and significant advances

Rapid global changes such as global warming and alteration of precipitation regimes cannot be fully followed by ecosystems, leading to ecosystem degradation and loss of function. Further degradation and loss of biodiversity is caused by the rapidly growing world population, which generates an increasing demand for food, energy and other biological goods. This demand is currently met by expanding agricultural areas, intensifying land use and increasing exploitation of forests, leading to rapid transformation of complex natural ecosystems into simplified managed agro- or forest ecosystems, a process accompanied by a shift in functions and loss in biodiversity (Vitousek et al. 1997, Tilman et al.2001). In fact, agricultural production is set to double by 2050 (Tilman et al. 1999). The demand for new products, such as large-scale biofuel production or the production of biomaterial and

bioactive compounds, may also strongly affect ecosystem services (Thies & Tscharntke 1999).
The wide range of disciplines merging within GGTE presents the unique opportunity to incorporate all facets of Global Change-related research on terrestrial ecosystems. This research will be organised into four research areas, which address the following key problems: (1) How do processes of Global Change affect ecosystem structure and function? (2) How can ecosystem products be produced in a sustainable way? (3) How can non-product ecosystem services be identified and valuated? (4) How are economical and social dimensions of Global Change interlinked?

Area 1: Ecosystem Functioning - Stability and Resilience in a Changing World

Understanding ecosystem functioning and maintaining ecosystem stability requires a deeper understanding of the relation of biodiversity to ecosystem functioning including the role of key species, i.e. species which exert disproportionate control on ecosystem processes. Particularly important are tests of the insurance hypothesis where the role of redundancy in functional species groups under changing environmental conditions is analysed. Insurance species may sustain ecosystem resilience, i.e. the capacity of ecosystems to reorganise after disturbance (Bengtsson et al. 2003; Tscharntke et al. 2005). Novel science-based and sustainable concepts are especially needed for silviculture as trees planted today will have to cope with drastic environmental changes over the coming decades. A recent challenge is the increasing demand for biomass to generate energy, which will cause profound changes in land use and ecosystem properties both in developing countries and in Europe (Pielke 2006). This development might cause an increased utilisation of marginal soils, with unforeseen consequences for land use and ecosystem services.
Research into ecosystem functioning has a long tradition in Goettingen and is linked to the names of Heinz Ellenberg, Bernhard Ulrich and others. Long-term monitoring sites, which enable the detection and tracing of changes in ecosystem functions, date back more than 50 years (Ulrich 1984). The interfacultative Centre of Forest Ecosystem Research (FERC) of the University of Goettingen was among the first to document negative effects of acid deposition on soils and trees. The consequence was the legislative restriction of sulphur and nitrogen emissions throughout the EU in the early 1990s. Ecosystem-scale experiments in forests with clean rain applications conducted at field sites of the FERC have revealed positive consequences of the “clean air policy” for ecosystem functions such as increased fine root production, improved internal nutrient cycling and increased ground water quality (Corre and Lamersdorf 2004; Lamersdorf and Borken 2004). Several large EU and DFG projects have focused on biodiversity-functioning relations in ecosystems (e.g. Tylianakis et al. 2006, 2007). The Interdisciplinary Centre for Biodiversity Research and Ecology (GCBE) is currently investigating the functional role of tree species diversity in temperate deciduous forests (RTG GK 1086; for an overview, see Table 1). The Collaborative Research Centre

(SFB 552 STORMA) is studying the stability of tropical rainforest margins, assessing consequences of climate change and land use intensification on ecosystem functioning and resilience (e.g. Schulze et al. 2004; Steffan-Dewenter et al. 2007). The DFG research unit FOR 816 (which started in 2007) investigates how biodiversity affects ecosystem functioning and resilience in a tropical mountain forest. The DFG-funded research units FOR 496 and FOR 546 examine the effect of molecular level processes in plants on inter-organism interactions and product quality (Luo et al. 2006).

Current and future research will focus in particular on the insurance hypothesis in ecology where the role of redundancy in functional species groups under changing environmental conditions is analysed. With the rapid advent of molecular techniques in the last few years, progress has been made in describing and analysing the functional role of micro-organisms in ecosystems (Blumenberg et al. 2004), and how intra-specific genetic diversity affects communities. New modelling approaches in the fields of stochastic geometry and geostatistics will open new avenues for the analysis of spatial arrangements and distance aspects in ecosystem functioning (Schütz et al. 1999; Schlather et al. 2004).

By adopting a variety of cutting-edge methods ranging from systems analysis, molecular, trace-analytical and isotope techniques to multi-scale modelling creates a promising platform for GGTE to make significant advances in the analysis how global change processes will affect the stability and resilience of ecosystems.

Area 2: Ecosystem Products including Biotechnology

Human society depends on ecosystem products like food, construction material and energy which are mainly provided by agriculture and forestry. The detrimental impacts of intensified agricultural and forestry practices on the environment and ecosystem services call for a much higher degree of sustainability of these practices. For instance, recent ecological research has shown that diverse production systems have the potential to support production while increasing ecosystem stability (Bianchi et al. 2006). Further, product quality has to be improved and commercial crops and products diversified in order to meet the changing demand of society under the constraints of global change processes and increasing socio-economic restrictions. Finally, there is a general shortage in the supply of high quality timber as raw material for the wood industry, while at the same time the demand for wood as energy source is continuously increasing.

The University of Goettingen has a long-standing experience in all aspects of silviculture ranging from cultivation of fast growing trees with suitable wood qualities for wood and paper industry (BMBF-*Waldökosystemforschung*) to new forms of plantation silviculture for energy production and cultivation of exotic tree species in different climate zones of the world (BMBF-*Küstentanne*). Agricultural research at the University of Goettingen has a long tradi-

Table 1: Selected third party funded projects in the four research areas

Type of Funding	Title of Project	Research area			
		EF	EP	ES	GC
DFG- SFB 552	Stability of rainforest margins in Indonesia (STORMA)	■	■	■	■
DFG-GK 624	Valuation and conservation of biodiversity	■		■	
DFG-GK 1024	Interdisciplinary environmental history			■	■
DFG-GK 1086	The role of biodiversity for element cycles and biotic interactions in temperate deciduous forests	■		■	
DFG-FOR 496	Poplar- a model to address tree specific questions	■	■		
DFG-FOR 546	Analysis of systemic action of infections by root-borne fungi on Brassicaceae with regard to multitrophic interactions	■	■		
DFG-FOR 571	Geobiology of organo- and biofilms: Coupling of the geosphere and the biosphere by microbial processes	■			■
DFG-FOR 756	Impact of shocks on the vulnerability to poverty			■	■
DFG-FOR 816	Biodiversity and sustainable management of a mega- diverse mountain ecosystem in Southern Ecuador	■	■	■	■
DAAD/DFG-IPP3	International Programme for Agricultural Sciences in Goettingen (IPAG)	■		■	■
DAAD/DFG-IPP3	Wood Biology and Wood Technology		■		
EU-NoE	EVOLTREE	■			■
EU-NoE	Alter-Net	■		■	■
EU-NoE	EPOCH			■	■
EU-IP-Bt-BioNoTa	Effects and mechanisms of Bt transgenes on biodiversity of non-target insects	■		■	
EU-IP-Diabrotica	Threat to European maize production by the invasive quarantaine pest *Diabrotica virgifera virgifera*	■	■		
EU-IP-EASY	Evaluating current European agri-environment schemes to quantify and improve nature conservation efforts	■		■	
EU-IP-ALARM	Assessing large-scale environmental risks	■		■	■
EU-IP-Agripopes	Agricultural policy-induced landscape changes	■		■	
EU-IP-QLRT	Integrating foraging attributes of domestic livestock breeds into sustainable systems for grassland biodiversity	■		■	
EU-Marie-Curie Training Site	Applied environmental research in wood product technologies - WOODYBIOTEC		■		
EFRE- NHN	Sustainable wood utilisation		■		
BMBF	R&D of archaeometric techniques within cultural history			■	■
BMBF-Bio-Sys	Evaluation of biological diversity of land-use systems in a mega-diverse region of Ecuador	■		■	■
BMBF-Bioplex	Biodiversity and spatial complexity in agricultural landscapes under global change	■		■	■
BMBF-DSS-WUK	Decision support system forests and climate change	■	■	■	■
BMBF-Küstentanne	Application oriented examination of beech and coastal fir from sustainably managed mixed forest stands		■		
BMBF-NAPUS	Healthy food from transgenic rapeseed	■	■		
BMBF-GABI	Genome analysis in rapeseed (GARS)	■	■		
BMBF-DIGENFOR	Characterisation of genes decisive for the adaptation of forest trees	■	■		

Note: ■ EF= Ecosystem Functions; ■ EP= Ecosystem Products; ■ ES= Ecosystem Services; and ■ GC= Global Change

tion in the development of farming systems that integrate the production of innovative goods while maintaining ecosystem services of farmed land such as biodiversity, provision of clean water or aesthetic landscapes. Major achievements have been accomplished in the field of integrated and extensive farming systems, of environmentally-sound production processes in farming and of the genetic improvement of oil seed crops (DFG-SSP Heterosis, BMBF-NAPUS 2000, BMBF-GABI) (Hüsken et al. 2005).

A particular strength of silvicultural research at Goettingen University is the employment of modern genetic approaches to detect best germplasms (DFG-FOR 495, EU-NoE Evoltree, BMBF-GABI, BMBF-DIGENFOR) that have the potential to combine high production rates of wood of desired properties with adaptations to specific biotic and abiotic environmental conditions (poor soils, adverse climate, pests, etc.) (Bogeat-Triboulot et al. 2007). In the wood and paper industries, new environmentally-friendly production processes are sought in order to upgrade low quality wood (EU-Marie-Curie-Training Site WOODYBIOTEC, FNR Heterobasidion, EFRE-NHN).

Present agricultural research focuses on the genetic improvement of major and minor crops and on the development of arable and grassland farming systems that are based on a better understanding of crop-environment-management interactions (Hüsken et al. 2005). For arable farming systems, research is focused on the scientific basis of advanced plant protection strategies including ecological and socio-economical impact assessment of genetically modified crop plants (Qaim and Zilberman 2003). Analysis and characterisation of multitrophic interactions among plants, insects and endophytes is used to support integrated pest management systems. Ecosystem products from livestock farming systems based on diverse grasslands are being investigated (Isselstein et al. 2007) and silvo-pastoral management systems in the tropics are analysed.

Future research will concentrate on the potential of win-win situations where yield and quality of products meet the demand while maintaining ecosystem resilience and stability (de Fries et al. 2004). Sustainable production systems with increased diversity are achievable by developing new and better adapted germplasm for plant production, by introducing new technologies of crop and animal husbandry and by developing strategies for improved exploitation of ecosystem services for production purposes. Biotechnological approaches are developed (Kilaru et al. 2006) to reduce the chemical load during the manufacturing process that may contaminate the environment and cause health risks. Material and energetic recycling, development of new generations of panel boards with novel properties and of insulation materials for the building industry, development of new nature-oriented adhesives, and finding efficient wood preservatives with no further threat to the environment as well as utilisation of by-products of wood processing as high value products (e.g. fragrances, mushrooms) are other hot topics in research.

Together with other institutions (Horticultural Sciences/University of Hannover, BBA/Braunschweig, Institute of Sugar Beet Research/Goettingen), the University of Goettingen has initiated the 'Network of Agricultural Sciences of Lower Saxony' in the field of agronomy. The aim is to strengthen interdisciplinary basic and applied research in crop science and food chain management and to provide excellent conditions for postgraduate education.

Together with partners from industry (Pfleiderer, Degussa and others), other academic institutions (Fachhochschule Goettingen/Holzminden, University of Braunschweig) and research institutes (FhG-WKI Braunschweig, NW-FVA, Goettingen) the University of Goettingen was a founding member of the NHN (*Kompetenznetz für nachhaltige Holzforschung*), an alliance to promote wood technology research. With support of Lower Saxony a unique technical school ("*Biotechnikum*") was built and equipped with facilities for wood composite production and laboratories for wood product analysis. This pilot installation accommodates eight to ten PhD students at a time and services as a platform to study applied problems in wood science close to industrial scale.

Area 3: Non-Product Ecosystem Services

Ecosystem services are defined as benefits gained from ecological systems. GGTE focuses on those ecosystem services that are usually not converted to commodities and traded in markets, including soil and water protection, carbon sequestration, pest control and conservation of biodiversity and related functions (e.g. Bianchi et al. 2006). The assurance of the sustainable provisioning of non-product ecosystem services is complicated by the fact that the public goods require more complex governance and management structures than market goods.

The capacity of an ecosystem or a spatial assemblage of ecosystems (a 'landscape') to supply ecosystem services depends partly on its biological diversity at the genetic and species level. Agricultural intensification at local and regional scales, together with the introduction of new products, such as large scale bio-fuel production or production of biomaterial and bioactive compounds, will strongly affect ecosystem services (Thies and Tscharntke 1999).

Quantitative models taking ecosystem services into account do only exist for small subsets of the ecosystem services. Although guiding principles for the conservation of biodiversity in production landscapes have been proposed to enhance biodiversity and ecosystem resilience (Fischer et al. 2006), neither academic conventions nor legally binding regulations exist as to how these measures should be implemented. The last decade brought not only a recognition of the importance of non-product ecosystem services for human well-being (Costanza et al. 1997; Balmford et al. 2002; Heal and Kristrom 2005), it also sharpened the vision of the necessary combination of ecological research and the socio-economic benefits provided by ecosystem processes, resulting in ecosystem services (de Groot et al. 2005)

including impacts of genetic modification of crop plants (Qaim and Zilberman 2003, Stein et al. 2006).

Previous work at the University of Goettingen has focused on effects of management intensity on ecosystem services in agricultural and forested landscapes in Central Europe, mainly on grasslands, arable land and mixed forests (EU-QLRT, BMBF-*Waldoekosystemforschung*, BMBF-Bioplex, GK 1086, planned Northeim Grassland Management Intensity Experiment), and in the humid tropics, particularly on land use intensity gradients including agroforestry crops (e.g. SFB 552, BMBF-Bio-Sys, BMBF-Diva, EU-EASY, EU-ALARM, EU-AGRIPOPES, Helmholtz-JRS-BESS). This research provides the basis for complex ecosystem state research issues as fragmentation effects, non-crop habitat and microbial community management.

A recent trait-based risk assessment approach developed by Butler et al. (2007) has been shown to be a valuable tool in guiding complex land management decisions towards sustainability targets. However, incentives are necessary to convince farmers and foresters to contribute to services like climate regulation, water and soil protection, biological control and cultural and recreational ecosystem services. Consequently, GGTE operates at the interface of natural sciences, social sciences and humanities.

Understanding the value of ecosystem services is critical to derive cost-effective policy options promoting sustainable ecosystems and human welfare. In cases where quantification of ecosystem services remains elusive, recent innovations in contingent valuation and choice experiment techniques can derive more reliable valuations. Integrating remote sensing data, statistics and survey data greatly improves economic decision-making models and land-use impact models.

Implementation of economic valuation will affect many other social and legal aspects like e.g. property rights regimes, payments for ecological services, economic incentives, fostering and application of environmental knowledge, institutional change, governance patterns etc. Moreover, underlying tacit and explicit value systems, mentalities, and attitudes of land governance as examined by an environmental history approach may reveal crucial cultural determinants of valuating biodiversity. Analyses of these and other aspects constitute a considerable interdisciplinary challenge for which GGTE is well-positioned, based on experience in large collaborative and multidisciplinary projects (e.g. EU-EASY, BMBF-Bio-Sys, BMBF-Bioplex SFB 552 STORMA, GK 624, GK 1024). Examples of on-going and recently finished research projects include also ecosystem-scale drought experiments (the 'Roof Project' in Solling and the Sulawesi Throughfall Displacement Experiment in SFB 552), ecosystem-scale nutrient addition and removal experiments ('Roof Project' in Solling, a Robert Bosch Research Group, Numex in FOR 816), DFG funded research into the effect of temperature increase on permafrost, and the ecological as well as economical aspect of carbon sequestration and biodiversity in study sites in Latin America (funded by GTZ and

BMBF-Bioteam). In research area 3, GGTE graduate students will actively participate in concerted research efforts on different continents in close collaboration with domestic (BBA, NW-FVA) and international (CIFOR, ICARDA, IAI) organisations in an environment of jointly cooperating social and natural scientists (as recently shown by Steffan-Dwenter et al. 2007).

Area 4: Economic and social dimensions of Global Change

Terrestrial ecosystems are a key component of the global environment and GGTE strives to contribute to our understanding of global change effects. While Research Areas 1-3 focus on ecosystem functioning, products and services, Research Area 4 addresses the interaction between human activities and the environment. Human dimensions of global change include anthropogenic causes as well as the impact on humans and options to control global change processes ('mitigation') or adapt to it ('adaptation'). Of particular interest will be interactions between global economic change, global change processes, and the ability of terrestrial ecosystems to maintain its structure and function (Pearce and Warfard 1997; Reardon and Vosti 1995).

In order to understand (I) social processes driving the relation of humans to the global environment, key drivers of differential population growth and income growth dynamics have to be identified. Further, the linkages between population growth, poverty, inequality and the use and/ or destruction of terrestrial ecosystems have to be examined in context with globalisation and trade. Strategies contributing to the sustainable use of terrestrial ecosystems have to be evaluated. In order to assess (II) the impact of human activities on terrestrial ecosystems the scale of subsequent changes (at local, regional and global scale) efficient monitoring tools will have to be developed to supply the relevant information for cause-and-effect research and decision makers, and (III) possibilities to adapt agricultural and forestry production systems (including integrated production systems like agroforestry) to the changing environmental conditions have to be identified.

At the University of Goettingen the collaborative research centre 552 (STORMA) assesses interactions between socio-economic change and land use patterns (e.g. Steffan-Dewenter et al. 2007). This is done at different levels of aggregation (from the plot to the household, village, regional, and national levels). Ongoing research includes the ecological effects of silvicultural options and forest use intensities and the development of tools and algorithms for the monitoring and assessment of changes in land use, ecological and economical aspects of carbon sequestration and biodiversity in study sites in Latin America (BMBF-Bioteam, Declim C) forest structure and landscape diversity (BMBF-Bioplex), as well as determinants of poverty and inequality in developing countries (FOR 756, Klasen 2002).

Principal investigators and participating faculties are embedded in an international network of partner Universities in the Americas, Asia, and Africa and cooperate with leading international research organisations (such as CIFOR, IFPRI, IAI) and organisations, which

implement projects related to global change (such as the FAO, GTZ, World Bank and ESSP "Earth System Science Partnership").

The integration of life sciences and social sciences at the University of Goettingen and the cooperation with a network of international partners significantly improves the international visibility of research on terrestrial ecosystems in Goettingen.

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2.1.3 Medium-term and long-term impact of GGTE on research activities

We expect that GGTE will be attractive for the best national and international graduate students in the field of terrestrial ecosystem research. Today, graduate students already contribute considerably to the high impact publications of GGTE (see 3.1.1, 6.7) and our expectation is that this contribution will increase with the research training activities proposed for GGTE. This, in turn will increase the attractiveness of the GGTE for excellent national and international students. Furthermore GGTE will make the University of Goettingen more attractive for outstanding scientists in the fields of terrestrial ecology as GGTE will provide a basic research environment in combination with institutional and industrial facilities, which will be sought after worldwide.

Providing a framework for interdisciplinary PhD theses, GGTE is expected to contribute significantly to close and efficient cooperation between the different disciplines involved fostering a truly interdisciplinary approach to terrestrial ecosystems.

2.1.4 Research and training strategy

With the faculties of Forest Sciences and Forest Ecology, Agricultural Sciences, Biology, Geosciences and Geography, Mathematics and Informatics, Economic Sciences and Law as participating faculties, GGTE is embedded in a classical "full university" which provides a unique constellation of expertise for research on management of terrestrial ecosystems. As already demonstrated above, there is a great wealth of highly recognised research in this area in Goettingen. Some of it is conducted by individual researchers and units, but it also comprises large collaborative ventures. These include an international collaborative research centre (SFB 552), Research Training Groups GK 1086 and 1024, Research Units FOR 496, 546, 756, and 816 numerous other externally funded collaborative research networks, together with three Networks of Excellence (EU), and several research units (BMBF, BMVEL, BMU, EU), as well as a Marie-Curie Training Site (EU), two junior research groups (Robert Bosch and Helmholtz-BESS), and two international PhD programmes (DAAD/DFG). These successful interdisciplinary research centres emphasise continuing networking and increase the competence in environmentally-relevant research and research training. This outstanding competence in ecosystem research has a sound international basis and extends to the tropics and subtropics, as recently emphasised by the German Science Council (*Wissenschaftsrat*: Suggestions for the development of the Agricultural Sciences and related disciplines, 2006). The research profiles of the participating researchers fit well with the research orientation of the graduate school, following interdisciplinary approaches in this system-oriented science, comprising scientific, technological and socio-economic dimensions. Based on strong basic science fundaments, GGTE will closely follow the approach recommended in the DFG memoir “Future Perspectives of Agricultural Science and Research” (Wiley-VCH, Weinheim, 2005) and focus on pressing issues, integrated approaches and identification of workable solutions.

Research and training in the framework of the Graduate School will be able to address three different spatial scales (local, regional and global) and two different climatic regimes (temperate and tropic), owing to the different scopes of the participating interdisciplinary research centres.

The Network on Sustainable Wood Utilisation (NHN) has its focus on the entire forestry product chain from local to regional levels, the Forest Ecosystems Research Centre (FERC) and the Goettingen Centre for Biodiversity and Ecology (GCBE) both have a spatial focus ranging from plot study over landscape to the regional level. The Centre for Tropical and Subtropical Agriculture and Forestry (CeTSAF) and the Centre for Nature Conservation (CNC) have a regional to continental scope. The former research centres are primarily concerned with research in the temperate climate zone, while CeTSAF's focus on the tropical and sub-tropical environment. The CNCs are globally distributed. A particular focus on sustainable agriculture is contributed by the Research Centre for Agriculture and the Environment (ZLU), which also has a strong emphasis on the social sciences interface, as it strives to identify ecologically and socially acceptable strategies in agricultural management. Finally, the interdisciplinary Centre for Informatics (ZfI) and the Centre for Statistics (ZfS), both centres of the mathematical faculty, add the dimension of shared data management, statistical evaluation, computational modelling and responsibilities as key methodological component to the interdisciplinary approach of the graduate school.

The goal of the Goettingen Graduate School for Terrestrial Ecosystems is to provide an excellent educational programme for outstanding national and international students. Education is based on four pillars:

- Excellent research environment, documented by a large range of existing individual and collaborative research projects of the participating faculties on terrestrial eco-systems
- efficiently structured transdisciplinary training, building upon strong existing PhD programmes, now being integrated by addition of specialised training modules on terrestrial ecosystem research
- new interdisciplinary PhD programmes focusing on particular aspects of terrestrial ecosystem research and
- training in professional skills and integration of cooperating institutions.

However, there is enormous, but as yet unrealised potential to capitalise on this research excellence and networking for graduate education. There are numerous existing PhD and training programmes in participating disciplines, some with excellent evaluations. They include two international PhD programmes (DAAD/DFG), as well as one Marie-Curie Training Site (EU). While providing excellent training opportunities in the respective disciplines and some interdisciplinary co-operations, in particular between the different

natural and life science programmes, the synergies between these individual programmes of the different faculties, in terms of different perspectives on terrestrial ecosystem research, remain unexploited so far. In particular, the gap between natural and life science programmes on the one hand, and social science training on the other, remains perceivable, despite existing research collaboration (such as SFB 552).

Thus, the central goal of GGTE is to capitalise on these unrealised opportunities by building up a Graduate School with a focus on terrestrial ecosystem research and located at the interface of the participating disciplines. The key strategic elements to reach this goal are:

- to **attract outstanding PhD students** to Goettingen to undertake research in terrestrial ecosystems. These will be integrated in existing research programmes on terrestrial ecosystems, thus the wealth of existing research excellence will be used for further training of young talents
- to enable **interdisciplinary supervision** and mentoring of PhD students during their independent research through joint admission decisions, interdisciplinary thesis and examination committees as well as GGTE specific colloquia, conferences, and workshops
- to bring together new and current PhD students on topics related to terrestrial ecosystem research by offering them additional tailor-made **interdisciplinary courses**, new facilities for research training, interaction with peers, and an interdisciplinary research environment
- to raise methodological standards by linking existing and new PhD programmes on terrestrial ecosystem research with methodological training programmes such as those offered by the interdisciplinary Centres of Statistics and Informatics and by offering **advanced methods courses**
- to integrate new and current PhD students in terrestrial ecosystem research into existing **research and training centres,** such as FERC, CeTSAF, GCBE, and practice networks like NHN at the University of Goettingen and to encourage short term stays at the facilities of domestic or international cooperation partners
- to establish two new PhD programmes (PhD **Agroforestry**, PhD **Governance of Biological Resources**) that are specifically located at the interface of the participating disciplines and will be able to address the critical areas of research identified above
- to **raise the standards of PhD training** in programmes associated with GGTE by requiring them to follow strict standards in training, supervision, examination and colloquia
- to create **personal identification** of the PhD students with GGTE by providing a GGTE-seminar and common workshops on professional skills. In addition to the

individual research projects, 10 % of the students' workload consists of training in obligatory seminars and tutorials.

Each programme elects its own programme board which meets regularly to discuss and decide about matters concerning the individual programmes (e.g. student performance, general issues). Each student is supervised by a group of three established scientists (thesis committee) fostering the integration of the doctoral student into the international research community.

GGTE adopts the rules and regulations of GAUSS, GGG and GSGK for the award of doctoral titles in mathematics and natural sciences/ social sciences/ humanities ("*Rahmenpromotionsordnung*"). The role of GGTE as a common postgraduate training framework in terrestrial ecosystem sciences is to ensure international visibility and high standards for recruitment schemes and doctoral training. The development of integrated MSc/ PhD programmes incorporating different levels of research education (Master, PhD) is supported by GGTE and may serve as a new model for integrated doctoral training at the University of Goettingen in the future.

The success of implementation of new training strategies within GGTE is evaluated by qualitative and quantitative indicators such as number and quality of publications by PhD students, number of patents involving PhD students, number of students applying to the programmes, evaluation of seminars/courses by students (content and lecturers), number of final exams reviewed by international experts in the respective field, time-to degree, accreditation and "European Credit Transfer System" (ECTS points) and quality of postdoctoral positions (career options) offered after successful completion of the PhD studies.

In order to increase international visibility of GGTE and to provide doctoral students with optimised research and career opportunities, joint dual degree PhD programmes will be developed on the basis of already existing joint dual degree Master programmes with strategic partner universities in Europe and overseas.

2.1.5 Programmes in GGTE

All programmes in GGTE described below contribute to relevant research areas of GGTE (see also Table 2). In order to complete the matrix structure within the field created by four research and teaching areas, two different instruments are envisaged. Firstly, new international PhD programmes are planned in order to strengthen the teaching competences in the field of Agroforestry and in Governance of Biological Resources. In order to start these programmes, it is planned to provide them temporarily with eight grants and a guest lecturer position. The second instrument will be "Free Floating Doctoral Grants" which will be assigned to the best applicants for PhD studies giving rise to new links between the different programmes.

Table 2: Activities of the PhD programmes in the four areas

PhD Programmes	GGTE Research Areas			
	EF	EP	ES	GC
PhD; Wood Biology and Wood Technology				
MSc/PhD; Biodiversity and Ecology *				
MSc/PhD; International Programme for Agricultural Sciences in Goettingen*				
PhD; Forest Sciences and Forest Ecology				
PhD; Agricultural Sciences				
MSc/PhD; Environmental Informatics*				
PhD; Applied Statistics and Empirical Methods				
MSc/PhD; Agroforestry**				
PhD; Governance of Biological Resources**				
MSc/PhD; Geosciences**				
MSc/PhD; Resource Analysis and Management**				
RTG 1024- Interdisciplinary Environmental History				
RTG 1086 - The Role of Biodiversity for Element Cycles and Biotic Interactions				
Haeckel - RTG Biodiversity in Soils**				
Haeckel RTG -The Northeim Grassland Management Intensity Gradient**				

EF= Ecosystem Functions; EP= Ecosystem Products; ES= Ecosystem Services; and GC= Global Change

* integrated MSc/PhD programmes

** planned PhD programmes

Already existing and planned permanent degree programmes within GGTE

1.	PhD Programme "Wood Biology and Wood Technology"		
	Spokesperson: Prof. Dr. H. Militz	Status: active since 2001	Accredited: 2007
	7 PhD students/year	http://www.holz.uni-goettingen.de/phd/	

This is the only PhD programme on wood technology in Germany. It started with financial support of the German Academic Exchange Service (DAAD). This international three-year PhD-programme is open to highly qualified students of forestry, wood sciences, biology, biotechnology, microbiology, biochemistry, chemistry, etc., offers structured doctoral training in English and emphasises an independent research work of the students. Multi-faceted applied and basic research covers tree breeding, physiology and wood anatomy, wood biotechnology and microbial wood degradation, wood modification and chemistry as well as

engineering. Training of professional skills and practical courses prepare participants for leading positions in management in the wood-working industry and in international research institutes.

2.	MSc/PhD Programme “Biodiversity and Ecology”		
	Spokesperson: Prof. Dr. Ch. Leuschner	Status: active since 2005	Accredited: 2005
	7 PhD students/year	http://www.biodiversitaet.gwdg.de	

The integrated degree programme aims at offering students of biology, agriculture, forestry, geosciences, economics and law a high-level academic education closely linked to research activities, according to international standards in the fields of biological diversity and ecology. Basic and applied research spans from the genetic to the landscape level, considers fauna, flora, vegetation and ecosystems and their interrelations with the environment, and includes the social and economical aspects of natural resources and ecosystems functions. Studies are well supported by a variety of unique resources (three Botanical Gardens of different focus, the Culture Collection of Algae, the Zoology Museum, the Museum of Geoscience Centre Goettingen, the dedicated Library for Forest Sciences in Germany) and well established long-time national (e.g. Harz, Solling, Hainich) and international study sites (e.g. Indonesia, Costa Rica). Courses are held in English language. The degree programme is coordinated by the Goettingen Centre for Biodiversity and Ecology (GCBE).

3.	MSc/PhD Programme “International Programme for Agricultural Science in Goettingen”		
	Spokesperson: Prof. Dr. W. Lücke	Status: active since 2001	Accredited: 2006
	7 PhD students/year	http://www.ipag.uni-goettingen.de	

The consecutive DAAD-funded international degree programme comprises six major fields of agricultural science (Agricultural Economics and Rural Sociology, Agronomy, Animal Production, Management of Natural Resources, Agribusiness, Tropical and International Agriculture) and emphasises independent research on the part of the participants. All departments of the Faculty of Agriculture contribute to the programme which gives the students a wide range of opportunities to pursue their personal interests in interactive research in agriculture-based life sciences, ecology, economy and sociology. The programme offers structured graduate and doctoral training in English language including lectures, tutorials, seminars, and methods courses combined with training in oral and written communication skills, including scientific writing and publishing.

4.	PhD Programme “Forest Sciences and Forest Ecology”		
	Spokesperson: Prof. Dr. R. Finkeldey, Dean	Status: active since 2001	Accredited: 2007
	9 PhD students/year	http://www.forst.uni-goettingen.de/studium/prom/sto_prom_forst.pdf	

The aim of this PhD training programme at the Faculty of Forest Sciences and Forest Ecology is to offer research-oriented, structured doctoral training, combining professional skills with a theoretical and methodical understanding of scientific foundations of forest ecosystems and their management. In their research, all kinds of basic and applied fields in forestry might be approached by PhD students – forest management and silviculture of temperate and tropical climates, forest inventory, forest genetics and tree breeding, forest botany, forest zoology and wildlife biology, forest and nature conservation, bioclimatology, soil science and ecopedology, forest politics and history, forest economics, forest biometry and informatics, wood chemistry, wood biology and wood products, technical mycology and molecular wood biotechnology.

5.	PhD Programme “Agricultural Science”		
	Spokesperson: Prof. Dr. R. Marggraf, Dean	Status: active since 2001	Accredited: 2007
	12 PhD students/year	http://www.uni-goettingen.de/de/kat/45032.html	

PhD projects in this programme focus on the broad field of agricultural science supporting independent research of candidates in new and original scientific questions and integrate training of professional skills into its programme. PhD students in this programme conduct basic and applied research in the areas of crop sciences, live stock sciences, resource management, agricultural business and economy, and agricultural sociology to establish and understand scientific fundamentals, production techniques and economical and social aspects of agriculture as well as the actual and future state of agricultural productions and their implications for society, economy and environment including development in rural areas, security of feedstock supply and provision of sustainable production systems.

6.	PhD Programme “Environmental Informatics”		
	Spokesperson: Prof. Dr. B. Sloboda	Status: active since 2006	Accredited:
	7 PhD students/year	http://www.uni-goettingen.de/de/sh/30826.html	

The consecutive unique degree programme for Environmental Informatics integrates bio-, eco-, and geoinformatics together with pertinent scientific calculus. A particular focal point is system-oriented integration over multiple spatial scales of biological, ecological, and environmental systems in order to study and model specific objects, structures, functions, regulatory networks, and processes (signal, material, and information flow), thereby employing the most

advanced methods in spatial informatics. Interdisciplinary courses in computer sciences, system modelling and related subject areas support the PhD students in their research.

7.	PhD-Programme "Applied Statistics and Empirical Methods"		
	Spokesperson: Prof. Dr. M. Schlather	Status: active since 2005	Accredited:
	7 PhD students/year	http://zfs.uni-goettingen.de	

This PhD programme on statistics is unique in Germany. It is equally open for PhD students in stochastics and from applied sciences. It aims to train in good statistical practice at high international level in research and development and, according to the broad application of statistics, is covered by 12 institutions of 7 different faculties of the university. Active interdisciplinary research in development and application of current statistical methods and software is expected by the PhD students in disciplines reaching from the various types of life sciences (agriculture, biology & genetics, forestry, mathematics and others) over economics to social sciences. The courses offered in this programme range from lectures on statistical methodology to consultancy projects with industry or research institutes, amended by a variety additional accompanying courses provided by the participating faculties.

8.	PhD Programme “Agroforestry”		
	Spokesperson: Prof. Dr. Ch. Kleinn	Status: planned to start in 2007	Accredited:
	7 PhD students/year		

Agroforestry combines agricultural crops and trees into the same production system, targets at diversity and stability of production and plays an important but regionally very different role in the development of sustainable production systems in agriculture and forestry worldwide. Agroforestry is currently predominantly practiced and scientifically researched in the tropics and subtropics where it has been shown to have a high potential for improved resource use efficiency, owing to synergistic effects of agricultural and tree production, increased C-sequestration, and increased biodiversity (including effects on the abundance of pests and diseases). Agroforestry systems are increasingly being discussed and researched also for temperate climates, in part as a response to the ongoing global changes that affect site conditions (climate change increasingly causing drought and extreme weather conditions) but also market conditions (competing food and bio-energy production). Agroforestry systems are complex; experts are in high demand that can scientifically further develop these systems towards an optimisation of the overall production, including ecosystem products and services. Bringing specialists of agricultural, forestry and biological sciences together with cooperating international research institutions like CIFOR, ICARDA and international organisations like FAO will provide an excellent platform for a timely new PhD programme homing on high-quality interdisciplinary research into ecosystem services and products of agroforestry systems in tropical, subtropical and temperate climates.

9.	PhD Programme “Governance of Biological Resources”		
	Spokespersons: Prof. Dr. R. Marggraf, Prof. Dr. B. Herrmann	Status: planned to start in 2007	Accredited:
	7 PhD students/year		

Use and exploitation of biological sources as such are firstly driven both by factors of geographic determinism and economic/energetic necessities. But the agricultural and silvicultural use of plants and animals, as well as decisions about distribution patterns of arable land, forests, fallows, and wilderness etc. in a given area also very much depend on decisions within and by the cultural backgrounds of a society. Indeed, these form the expectations and demands of societies and individuals towards ecosystem services for providing backgrounds for emotional and belief-system-tied nonmaterial benefits and transforms “nature” very much into a product of culture. Hence, including humanities for cross cultural and diachronic analyses based upon historical approaches is of fundamental importance. The aim at displacing non-rational attitudes of “nature” and “the natural” for the sake of sustainable, enlightened, and rational epistems has a demand in the understanding of the existence of tacit values in a society, and the understanding of their emerging and persisting. At the descriptive level, governance research analyses the interaction of factors such as individual needs, desires and perceptions, as well as individual and collective human actions in a complex framework of societal and legal norms, social expectations, and institutional restrictions in relation to observed effects on potential sustainable development objectives. At the normative level, governance research designs and tests strategies to enhance the problem-solving capacity of social systems. Against a background of increasing scarcity of biological resources, the proposed PhD programme aims at the education of scholars and professionals who combine an understanding of terrestrial ecosystems with a pronounced expertise in the environmental social and cultural sciences. The close link to natural and technical sciences within GGTE facilitates an assessment of the availability of sufficient methods and data sets.

10.	MSc/PhD- Programme “Geosciences”		
	Spokespersons: Prof. Dr. J. Reitner	Status: planned to start in 2007	Accredited:
	5 PhD students/year		

This programme focuses on the different scientific approaches of geosciences, in particular geobiology, geochemistry, geology and geography. It comprises essential parts of terrestrial ecosystems. Events and consequences of activities in the earth’s interior are considered (volcanology) as well as occurrences on the earth’s surface (geomorphology). Furthermore the research of resources (mineral deposits, geothermic energy), natural hazards (seismology, tsunamis) as well as consequences by human influences (land use, water

conflicts, hydrology) are taught. The programme is research-oriented, it offers structured doctoral training, combining professional skills with a theoretical and methodical understanding of scientific foundations of geosciences as the basis for terrestrial ecosystems.

11.	MSc/PhD Programme “Resource analysis and management”		
	Spokespersons: Prof. Dr. W. Kreisel, Dean	Status: planned to start in 2007	Accredited:
	5 PhD students/year		

This programme focuses on resource analysis and resource management under special consideration of land use change and regional development on the global, regional and local level. The programme therefore deals with terrestrial ecosystems, water and soil, land use, urbanisation, demographic change (migration and mobility), regional disparities. By balancing potentials and risks strategies for an overall sustainable development are designed. Geographic Information Systems (GIS) form an integral part within this programme. The spatio-temporal approach is regarded as the basis of geographical research and marks the unique selling proposition of this programme. It is based on scientific research and offers structured doctoral training, combining professional skills (applied research work) with a theoretical and methodical understanding of scientific foundations of resource analysis and -management as an integral part of terrestrial ecosystems.

Third party funded programmes within GGTE

12.	RTG 1086 “The role of biodiversity for biogeochemical cycles and biotic interactions in temperate deciduous forests” (temporary)		
	Spokespersons: Prof. Dr. Ch. Leuschner	Status: active since 2005	Accredited:
	6 PhD students/year	http://www.forest-diversity.uni-goettingen.de/	

The strictly interdisciplinary approach aims at educating highly qualified and innovative experts on the diversity-ecosystem functioning topic. With a broad background in ecology, forest sciences and environmental economy, the research training group combines internationally competitiveness in basic ecological research, and in applied forest management. The Research Training Group investigates in three sub-programmes (Biodiversity analysis and biotic interactions, Biogeochemical cycles, Synthesis) the role of tree species diversity in broad-leaved deciduous forests of the Hainich National Park (Thuringia, Central Germany) for productivity, carbon sequestration, nutrient and water turnover, deep seepage, nitrate leaching, and biotic interactions among key organism groups as well as for ecosystem services. The graduate school links to the in English language-held MSc/PhD programme “Biodiversity and Ecology” which guarantees international collaboration and synergism.

13.	RTG 1024 “Interdisciplinary Environmental History: Natural Environment and Societal Behaviour in Central Europe” (temporary)		
	Spokespersons: Prof. Dr. B. Herrmann	Status: active since 2004	Accredited:
	6 PhD students/year	http://www.anthro.uni-goettingen.de/gk/index.html	

In this research training programme questions of natural environment (exploitation and experience in medieval times; constructions and reifications) and societal impacts (conflicts about natural resources in the 18th-20th centuries; diking of nature, live stock diseases, pest control and river control from early enlightenment to mid-20th century) are tackled in an interdisciplinary approach of discourse encompassing natural sciences as well as social and economic science, embedded in the historical context. The programme aids cognitive scientific interest of the PhD students and the exchange and dialogue between natural and social sciences and humanities about their methods, approaches and cognitive interests concerning environmental history in self-directed learning according to the proven model of “*Göttinger Lernkabinette*” (“The Goettingen Catalogue of Instructional Models”).

14.	Haeckel -RTG “Biodiversity in soils” (temporary)		
	Spokespersons: Prof. Dr. Ch. Leuschner	Status: proposal to State of Lower Saxony	Accredited:
	6 PhD students/year		

Biodiversity in soils will be studied by examination and manipulation of populations of animals, root systems and micro-organisms in natural and artificial soil systems. In experimentally altered systems, biogeochemical cycles, the differential activity of autotrophic and heterotrophic soil organisms, and the control of soil-borne pathogens will be analyzed.

15.	Haeckel RTG “The Northeim Grassland Management Intensity Gradient” (temporary)		
	Spokespersons: Prof. Dr. R. Marggraf	Status: proposal to State of Lower Saxony	Accredited:
	6 PhD students/year		

Biodiversity losses and the resulting impairment of ecosystem functions in agricultural systems under the EU common agricultural policy (CAP) will be assessed by comparison between areas with different degrees of agricultural use intensity. The different functions and values of biodiversity, including non-marked values, will be assessed and evaluated.

2.1.6 Long-term academic objectives

The main strategic aim of GGTE is to take a leading role in research and teaching in the four outlined research areas of terrestrial ecosystem science. With this objective, GGTE already established DFG-funded research training groups and implemented interdisciplinary

international MSc/PhD programmes. GGTE will also initiate innovative, structured programmes for research centres of excellence to be established at Goettingen University, thereby supporting these cooperative research centres and contributing to the overall research strategy of Goettingen University. Moreover, to complement expertises and to cover more aspects of terrestrial ecosystem research and training, an integration of related structured programmes of universities in the region like Kassel-Witzenhausen or Braunschweig is envisioned in the future.

So, the long-term academic objectives are to form one integrative graduate school combining the different PhD and study programmes in the field of terrestrial ecosystem science in the Goettingen region incorporating activities at university- and non-university co-operation partners. Establishing this highly attractive international training site for ecosystem research is expected to foster training and support of excellent young researchers in the field and to further increase international visibility of the University of Goettingen.

2.2 Contribution to the university's strategic planning

2.2.1 Doctoral education

During the past three years the University of Goettingen has initiated major changes in its doctoral education. These changes aim at introducing structured doctoral programmes in all disciplines within three university schools (GAUSS, GGG, GSGK; see below). These three rather large university schools cover the entire spectrum of disciplines within the University of Goettingen: the school of humanities (GSGK), social sciences (GGG) and natural and life sciences (GAUSS), respectively. The goals of these schools are

- to provide a framework of regulations for admission, supervision, mentoring, and examination throughout the doctoral studies (*Rahmenpromotionsordnung*) and the conferral of the respective doctoral degrees
- to define a set of standards for quality control and monitoring procedures in graduate education
- to provide a legal basis for the integration of doctoral students and supervising faculty from cooperating non-university research institutions.

The creation of GGTE in the field of environmental sciences together with other thematically-oriented schools such as the Goettingen Graduate School for Neuro- und Molecular Biosciences (GGNB) is part of the reforming efforts of the University of Goettingen aimed at establishing scientific excellence in graduate training. These schools provide structured training for the doctoral level. They apply stringent quality criteria to

- the training programmes
- the participating faculty members and
- the students admitted to the doctoral programmes.

It is expected that GGTE will provide added value not only to the training of its own doctoral students, but also stimulate university-wide efforts to establish excellent training conditions. The goals of GGTE fully agree with the overall goals of the University of Goettingen in its efforts to improve doctoral education and thus the professional prospects of its graduates on the international job market.

2.2.2 Fostering international relations

The university is presently launching a programme aimed at increasing its international visibility and its ties with foreign partner universities. Measures which are presently planned in “Goettingen International” as a part of the “Institutional Strategy to Promote Top-Level Research” include (I) the creation of a Welcome Centre (operated jointly with the City of Goettingen) which will provide assistance in all aspects of life to students, scientists and scholars and (II) the establishment of contact offices at partner universities in California, India, China and Korea, selected for geographical reasons and with respect to the content of the partnership. These activities will be coordinated by a central office in Goettingen and are based on existing partnerships, co-operations and the successful international alumni network. The latter served as a best practice example throughout Germany. It is intended to attract highly qualified students, foster alumni networks and facilitate contacts between scientists, local and international companies.

2.2.3 Fostering excellence in research

GGTE includes graduate programmes of the research centre of “Biodiversity and Global Change” and is linked to the projected research centres of “Geobiology- Development of Early Life and Organic Matter Controlled by Rock and Mineral Forming Processes” and “Poverty, Equity and Growth in Developing Countries: Statistical Methods and Empirical Analyses” (proposals in the second round of Funding Line 3 within the Excellence Initiative of DFG). The University also hosts the Goettingen Graduate School for Neuro- and Molecular Biosciences (GGNB), which includes graduate programmes of the research centre of “Molecular Physiology of the Brain” (CMPB) and is linked to the projected research centres of “Nano-Spectroscopy and Imaging of Biomolecular Matter” and of “Evolution of Social Behaviour” (proposal in the second round of Funding Line 3 within the Excellence Initiative of DFG). GGTE and GGNB cover complementary disciplines and ensure excellent standards in specific research foci created by different disciplines present at a full university.

The international profile and the research concept of GGTE are perfectly in line with the university’s academic profile and development strategy. The existing network, linking the University with non-university research institutions, will be enlarged by the Goettingen Research Council, established in 2006. Via this board, the University aims to bring in external expertise and assessment. The initiative ”Brain Gain” is designed to test mechanisms for identification of new research areas and for setting up of research centres or

“free-floating“ junior research groups. The aim is to attract and retain excellent junior researchers by offering a career track comparable to the tenure track, based entirely on personal success. In addition, the University wants to attract highly qualified and talented junior scientists and scholars from abroad. The doctoral programmes and Research Training Groups in the GGTE are therefore a constituent part of the future strategy of the University, and of the Goettingen Research Campus as a whole.

2.3 Partnerships and collaborations

According to the well known innovation expert Richard Lambert, “The best form of knowledge transfer comes when a talented researcher moves out of the university and into business, or vice versa”. So, in order to foster the transfer of know-how by “transfer of heads” (Matthias Kleinert, DFG), governmental (BBA, BFH, NW-FVA, FAO at UN level) and non-governmental research agencies (CIFOR, FhG-WKI, IAI, ICARDA, IPFRI, ZALF, Universities of Kansas and Santiago de Chile) as well as industrial enterprises (Degussa, Pfleiderer, Symrise) are included as cooperation partners into the graduate school (for an overview, see Table 3). Many of these co-operations have a long-standing history including exchange of doctoral students, joint research projects and employment of students after completing their doctorates. It is essential for GGTE to integrate international partners such as CIFOR, FAO, IAI, ICARDA and IPFRI, focussing on different types of climates and of ecosystem products because many of the scientific areas addressed have an international dimension. Particularly Agroforestry, the subject matter of one of the new PhD courses, currently is of major importance in the extra-European subtropical and tropical environments.

Symrise is an important cooperation partner because of its upgraded ecosystem products, namely flavours and fragrances, which are complementing the focus on wood products represented by Degussa and Pfleiderer. These partnerships will broaden the basis and facilitate the process of mutual personal exchange for research or teaching stays in order to improve knowledge transfer and to increase the chances for doctoral students to succeed in post university career.

GGTE offers several postgraduate programmes and awards international degrees (e.g. PhD, Dr. rer. nat.), which is not possible for non-university partners (e.g. BBA, FhG-WKI). All partners provide research projects for PhD students and support them. Partners are obliged to offer the best training possible to young researchers in order to benefit from students' research and teaching input. Non-university partners profit greatly from the excellent selection and recruitment of PhD students performed by GGTE.

Table 3: Cooperation partners contributing to the research areas of GGTE

Cooperation partners contributing to the research areas of GGTE	GGTE Research Areas			
	EF	EP	ES	GC
Centre for International Forestry Research (CIFOR) http://www.cifor.cgiar.org			■	■
Degussa AG http://www.degussa.de		■		
Environmental Studies Programme of the University of Kansas http://www2.ku.edu/~kuesp/	■		■	
FAO Food and Agriculture Organisation of the United Nations http://www.fao.org	■	■		■
Federal Biological Research Centre for Agriculture and Forestry (BBA); http://www.bba-bund.de	■	■	■	■
Federal Research Centre for Forestry and Forest Products (BFH) http://www.bfafh.de		■		
Fraunhofer-Institute for Wood Research – Wilhelm-Klauditz-Institut (FhG-WKI); http://www.wki.fraunhofer.de		■		
IAI Inter-American Institute for Global Change Research http://www.iai.int			■	■
ICARDA International Centre for Agricultural Research in Dry Areas, http://www.icarda.org		■	■	■
IFPRI International Food Policy Research Institute http://www.ifpri.org		■		■
Leibniz-Centre for Agricultural Landscape Research (ZALF) http://www.zalf.de	■	■	■	
North-West German Forest Experiment Station (NW-FVA) http://www.nw-fva.de	■	■	■	
Pfleiderer GMBH & Co. KG http://www.pfleiderer.com		■		
Symrise GmbH & Co. KG http://www.symrise.com		■		
Universidad de Chile http://www.uchile.cl	■	■	■	

Note: ■ EF= Ecosystem Functions; ■ EP= Ecosystem Products; ■ ES= Ecosystem Services; and ■ GC= Global Change

GGTE organises curricula in co-operation with all the partners. Lecturers are selected so that excellent teaching can be offered in many specialised subjects. In addition, professional skill workshops/seminars as well as practical scientific courses are organised by all partners. The GGTE office is responsible for co-ordinating all these training aspects.

3 Research training, supervision and conditions of the doctorate

3.1 Admission and formal requirements for the doctorate

As a thematically focussed graduate school, GGTE is integrated in the framework of common rules and regulations for PhD studies within the university schools GAUSS, GGG and GSGK, which are approved by the Senate of the Georg-August University of Goettingen and the Government of Lower Saxony. These rules and regulations are updated and approved by the Senate on a regular basis. They apply to all PhD programmes and Research Training Groups within GGTE. All matters concerning organisation, application, selection procedures, supervision, curricula and exams are well defined therein. PhD students can rely on these rules throughout their studies and research at GGTE. A blueprint of a supervision agreement between the supervisor and the doctoral student will be provided by GGTE.

3.1.1 Requirements

The formal requirements for admission of PhD students in GGTE are:

- A degree in a relevant field, such as a Master's degree, diploma or Staatsexamen Exceptions are integrated MSc/ PhD programmes (see below)
- Excellent academic record (transcripts and certificates must be provided)
- Recent proof of proficiency in English for non-native speakers (TOEFL, IELTS or equivalent)
- Relevant research experience
- Motivation letter outlining existing knowledge, research field of interest and reasons for applying to GGTE and the respective PhD programme
- Two recommendation letters.

GGTE aims at promoting integrative MSc/ PhD programmes as a "fast track" for excellent students. Such programmes have already been implemented (e.g. IPAG) and it is planned to broaden the basis of MSc/ PhD programmes, within which students can directly commence their doctoral studies after collecting 90 credits from graduate training and qualifying examinations. The recruitment of outstanding bachelor graduates directly entering the MSc/ PhD programmes is one of the major goals of GGTE. This option will be implemented into two thirds of the existing MSc curricula.

3.1.2 Examinations

The PhD programmes emphasise independent research of their students. The curricula of the graduate programmes last three years and comprise lectures, tutorials, seminars and

advanced methods courses, which can be compulsory or elective. To qualify for the doctoral examination, a minimum of 20 credits must be collected (1 credit = work load of 30 h). Individual doctoral programmes of GGTE may increase the credit requirements from 20 to a maximum of 30 credits. To keep a reasonable work load, courses will be offered in a block format. Credits must be obtained in all three of the following categories:

I: Interdisciplinary seminars and lectures

- Active participation in annual GGTE symposia
- Contribution to PhD seminars
- Contributions to international research conferences

II: Specialised training

- Special courses (interdisciplinary courses, advanced methods courses, see 3.2.2)
- Internship in a laboratory of cooperating institutions, companies, NGOs
- Practical research or practical training abroad

III: Professional skills

- Organisation of seminars or conferences
- Professional training
- Teaching (e.g. tutor for MSc)
- Electives (can be chosen freely by each student from the entire advanced course spectrum of the university).

Currently students keep an account of their attendance in yearly study books. However there will be a switch to an electronic system. This system has already been implemented for BSc and MSc courses, but needs to be adapted to meet the requirements of PhD programmes.

For the award of the doctoral degree, all GGTE doctoral students must fulfil the following requirements:

- Collection of the minimum number of credits (20 ECTS, see above), approved by the doctoral programme
- Submission of two approved progress reports (see 3.3.1)
- Submission of the doctoral thesis
- Successful defence of the doctoral thesis
- Publication of the doctoral thesis.

The doctoral thesis may be submitted as a collection of scientific publications (i.e. a cumulative dissertation), which is usually the case. Alternatively the thesis may be submitted in the traditional format in a specific discipline. A cumulative dissertation consists of manuscripts, which have been accepted for publication in international, peer-reviewed

journals. The manuscripts must be complemented with an introduction and discussion of results. In addition, the doctoral student is required to submit a statement outlining his/ her contribution. Usually, two members of the thesis committee serve as reviewers of the thesis. One additional external referee is required for assigning the mark “summa cum laude”.
The final examination is a public defence of the thesis. Examiners are the members of the thesis committee plus additional examiners nominated by the respective university schools (see above). Final exams will take place twice a year. After successful defence, the doctoral candidate receives a PhD certificate including academic transcripts during a festive ceremony.

3.1.3 Degrees

Since GGTE provides a thematic platform for doctoral students from different areas, degrees can be obtained in agricultural sciences (Dr. sc. agr.), forest sciences (Dr. forest.), humanities (Dr. phil.), life and natural sciences (Dr. rer. nat), law (Dr. jur.), social sciences and economics (Dr. disc. pol./ Dr. rer. pol) depending on the doctoral student’s thematic focus. Accredited PhD programmes such as IPAG, Wood Biology and Wood Technology, Biodiversity and Ecology and Forest Sciences and Forest Ecology alternatively offer the international degree PhD (Doctor of Philosophy).
Goals of GGTE are to increase in the number of programmes offering the degree PhD and to implement dual PhD degree programmes together with international partner universities. GGTE already recruits students from existing joint Master programmes with international partners (such as CeTSAF). Mobility schemes have already been established in postgraduate programmes and form the basis for dual MSc curricula: e.g. the MSc International Agribusiness in collaboration with the University of Talca (Chile), the MSc International Nature Conservation in cooperation with the University of Christchurch (New Zealand) and the Erasmus Mundus Master on Sustainable Forest and Nature Management (SUFONAMA) in cooperation with five Universities (Copenhagen, Denmark; Bangor, Wales, United Kingdom; Alnarp, Sweden; and Padova, Italy). GGTE will use this excellent basis to extend these programmes to the PhD level in order to award dual degrees to doctoral students conducting their research and study at two locations.
Funding is required to establish electronic handling of courses, marks and credits, support travel of external reviewers, conduct final festive ceremonies, enable PhD students to conduct part of their study and research abroad and to set up dual degree programmes.

3.2 Research training

3.2.1 Objectives of the doctoral training programme

The major goal of GGTE is to provide both excellent training and supervision to outstanding doctoral students. Key features of GGTE are modular training units consisting of cutting-edge research training courses, complemented by highly structured professional skills and practical training either within GGTE, an external domestic or overseas cooperating institution (see 2.1.4). Special technical, methodological and language skills, the ability to work in teams, intercultural competence, international networking and mobility will be specifically promoted by the GGTE. This will provide a solid basis for doctoral training of outstanding quality.

GGTE's doctoral training has two main objectives: (I) to educate excellent scientists qualified for an academic career in any field of ecosystem sciences and (II) to prepare them for leading positions in enterprises, industries, consulting offices etc. Studies and courses (see 3.2.2) in various thematic fields need to be conducted in order to achieve these objectives (see Figure 1).

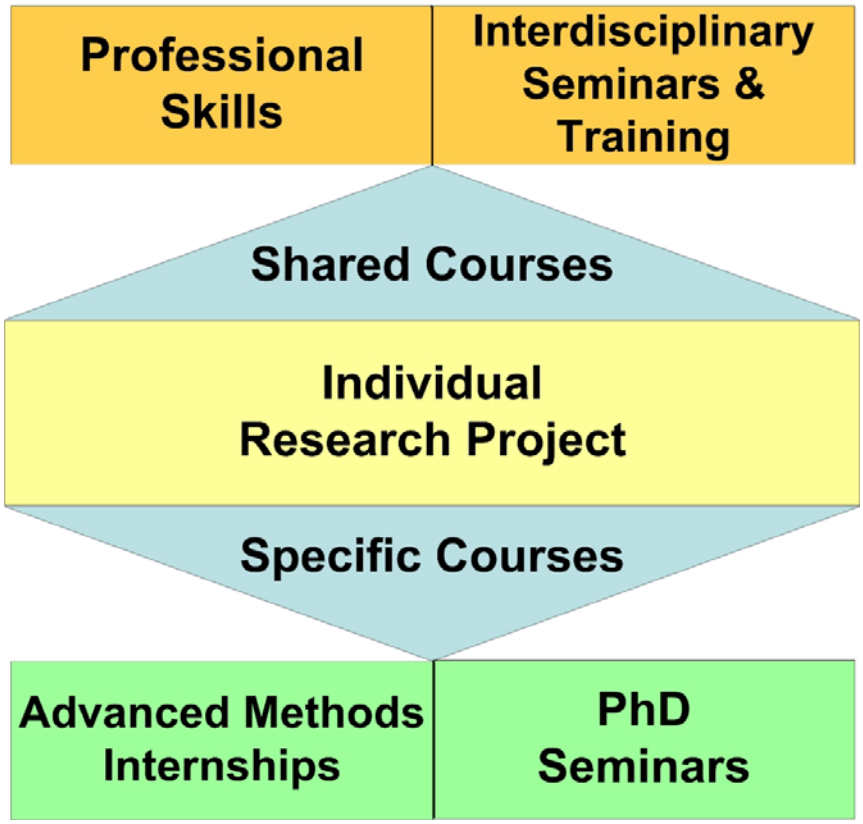

Figure 1: General structure of research and training

3.2.2 Measures for qualification

Academic training within GGTE will be clearly structured into three major areas:

- Scientific research and training within the candidate's field and related interdisciplinary relations and interfaces
- General management and governance skills, including essential professional skills for scientific guidance (sociology, psychology and economics, computational skills, communication skills, techniques and proficiency in scientific management)
- “Studium generale" in intercultural skills, music and fine arts, sports and languages.

3.2.2.1 Special features in scientific research and training

In order to facilitate interdisciplinary research approaches, GGTE offers joint modular Short Interdisciplinary Training Courses organised as workshops for students of all doctoral programmes. A wide range of interdisciplinary and faculty-spanning activities will be offered. The current course programme includes, amongst others, subjects as diverse as “Welfare Economics”, “Animal environment interactions in the (sub-)tropics” and “Geobiology and Geomicrobiology” (for further information see appendix: PhD level courses in the Principal Investigators’ curricula). For the past two years, more than twenty short interdisciplinary training courses have been offered on an annual basis by the principal investigators of GGTE. This catalogue will be expanded to accommodate all GGTE students. This will require additional 15-20 courses to be offered twice a year. A catalogue of all short interdisciplinary training courses, which constitute one of the main components of advanced research training, will be announced on the GGTE homepage.

A distinctive feature of GGTE will be highly specialised Advanced Methods Courses. These intensive courses are important components of the existing international PhD programmes. They will be extended to the scope of GGTE. Advanced Methods Courses will focus on the most innovative methodologies available in the fields of molecular biology, trace analytics (e.g. isotopes), markers, field measurements, data analysis, computation and modelling. They are limited to small numbers of participants to ensure the most intensive training and will comply in their ambition and quality to the highest international standards. The courses will be coordinated by a senior faculty member and will involve additional faculty members and international guest lecturers. The courses are a major commitment of the participating faculties to GGTE. Advanced Methods Courses have two goals: (I) to equip students with a broad spectrum of methods not available in their institution and (II) to encourage students to acquire expertise complementary to their own discipline. Annual surveys will be conducted among all doctoral students of the school to collect suggestions for establishing new and for improvement of existing courses. The success of all courses will be monitored through an online evaluation tool, which has already been implemented for this purpose. Part of the

budget applied for in this proposal will be used to establish and maintain these courses.

Colloquia, seminars, excursions and summer schools: GGTE will organise a regular GGTE symposium. PhD students will present their results in poster sessions or oral presentations. The plenary session will address a topic of common interest, which will be presented by GGTE faculty members and invited scientists. Panel discussions and breaks will provide opportunities for scientific exchange as well as informal contacts with members of governmental and non-governmental organisations and representatives of funding agencies, industry and politics.

Each PhD programme of GGTE organises a seminar programme in addition to an annual retreat. Doctoral students will report their latest results and future perspectives to their fellow PhD students and faculty members. Thesis committee meetings might be arranged in conjunction with the seminar.

Most research groups organise weekly lab-meetings for discussing problems and results of ongoing projects within the group. In addition, students are encouraged to participate in journal clubs, which involve selection and presentation of recently published articles under the supervision of a faculty member.

In addition to seminars, there will be excursions to renowned research facilities and experimental field sites, as well as to high-tech production facilities, which will be guided by local principal researchers or managers. Excursions to field sites of the collaborative research centre STORMA, to Research Units or Research and Training Groups will be used as a joint communication platform between members of permanent doctoral programmes and the researchers engaged in these temporary units.

In the past, we organised several summer schools in cooperation with our partner institutes. Examples include the summer schools organised with CeTSAF: “Chances and Challenges of Plantation Forestry in Asia and Europe - Forests for People” (August 2006), “Information Requirements for the Sustainable Management of Renewable Natural Resources” (September 2006) and the winter school on "Quality Assurance in Higher Education: Preconditions for an Effective Cooperation & Collaboration between Iranian and German Universities" (January 2007). Summer schools are important to bring together students from different locations, to attract prospective students and to increase the international visibility. Therefore GGTE will organise summer schools on a regular basis with changing topics starting with a school on “Sustainable production of renewable resources for bio-fuels”. Summer schools are announced internationally and hosted nearby Goettingen. Guided tours during leisure time will allow international students to get an impression of the history and the culture of their host country. GGTE as well as selected external students will be accepted in order to promote networking and international contacts. GGTE will not only financially support its own students, but also external students and invited speakers.

Part of the funding will be assigned to the organisation of GGTE symposia, PhD programme

seminars, excursions and summer schools. In order to achieve sustainable financing, additional funds will be obtained from sponsors (industry or alumni). GGTE will also apply to the DAAD for funding of summer schools. This has been very successful in the past since the DAAD approved, e.g., funds for a serial summer school in 2006, 2007 and 2008.

External research practical training or internships will be implemented in the curricula. GGTE would like to sustain and increase students' short-term research stays abroad and therefore short-term stays abroad (from 3 to 6 months) are strongly supported by the programme boards. Doctoral students will benefit from an extension of their personal network and the use of additional resources. For industrial enterprises, governmental and non-governmental organisations, these short term stays provide an excellent opportunity to identify suitable high potentials. These exchanges will also strengthen or form new collaborations. At the same time extramural training will develop both the organisational and financial skills of the students as they will be responsible for the allocation of the fixed travel grant, received from GGTE. Half of the travel money is to be gained by third party funding, the other half is needed as financial support for travel, accommodation and additional expenses.

3.2.2.2 Enabling personality for scientific guidance

GGTE has the ambition not only to generate scientifically excellent students, but also to develop their leadership capabilities. This includes the abilities to lead and to motivate scientific work groups and to communicate science to the public in an understandable way. These abilities require training in additional professional skills together with the intensive training of scientific skills.

Important professional skills for scientific management comprise self-reliance skills. In particular self-awareness and promotion, exploring and creating opportunities, good action planning and networking, negotiation, matching and decision making, coping with uncertainties.

To develop these professional skills, GGTE will offer the following courses:

- Rhetoric
- University level didactics
- Good scientific practice
- IT and multi-media competence
- Conflict management
- Training in scientific leadership
- Research project planning and acquisition of research funding
- Shaping of scientific journal articles and popular communications
- Presentation of scientific results to different audiences at different levels
- Foundation of business enterprises.

Some of the courses will be compulsory, others elective. Many of these courses have already been established by the international MSc/ PhD programmes and require only few adaptations. However, considerable upscaling will be required in order to accommodate all GGTE students. Postdoctoral fellows of GGTE will also have access to these courses (GGTE members see 4.1.5). GGTE faculty members are involved in these courses, however, funding for the organisation of summer camps and external instructors are required.
The acquired management and professional skills can be applied and tested by the students within GGTE itself as travel funds for conference visits and short-term stays are managed and distributed by the student community itself.

3.2.2.3 Components of a "Studium Generale"

“Studium Generale” aims at fostering the intercultural competence of GGTE’s doctoral students. Intercultural competence is the ability to understand different cultural habits and ways of thinking. An introduction to the unique features of different cultures will help to increase understanding and empathy within international teams. This involves specific preparation for excursions and research practical training abroad, as well as the arrangement of joint cultural experiences (e.g. visits to concerts, theatres and exhibitions). The idea is not only to visit the event, but also to be introduced to it by an insider such as the theatre director, orchestra conductor or exhibition designer.

3.2.2.4 Additional doctoral programmes

A central goal of GGTE is to implement novel PhD programmes, which strengthen collaborative links between the participating faculties and broaden the basis for inter-facultative training. While the university schools are organised according to classical disciplines, GGTE intends to develop a platform for interdisciplinary research-oriented education. As a first step GGTE will install the two new PhD curricula “Agroforestry” and “Governance of Biological Resources”, which will cover and link the outlined research foci (see 2.1). Through harmonisation and integration of existing modules, a number of suitable courses are already available. However, in order to provide the specialised expertise required for these additional programmes, new courses are needed. Therefore these new doctoral programmes will be supplied with one position for a guest professor (one semester W3) and several doctoral scholarships. This initial funding will help to complement existing expertise, for instance in “Tropical Agroforestry Systems”, and temporarily remove some of the workload from the programme’s spokesperson. Principal investigators can use this incentive to attract further extramural funds such as DFG research training groups or guest-professorships (e.g. DAAD programme) or from other sources. For the first period the new doctoral programmes “Agroforestry” and “Governance of Biological Resources” will be eligible for this support. In addition to enabling the GGTE to acquire additional expertise, this support will also allow it to enhance its profile at the borderline of several disciplines.

3.2.3 Teaching staff

The 25 Principal Investigators listed in section 1.1 constitute the core faculty of GGTE. They were selected based on their academic achievements, their engagement in a continuous process of shaping the scientific goals and training concepts of GGTE and their responsibilities in various governance aspects of the school (see 4.1). The GGTE faculty includes many additional scientists of comparable standing and experience. Faculty members may participate in several programmes. Currently, approximately 40 faculty members are involved in the doctoral training within the existing programmes. After the implementation of the newly established programmes, the number of GGTE faculty members is expected to exceed 50 (Table 4).

Table 4: Overview of all PIs and total staff number participating in the different PhD programmes

Degree programmes	Teaching Staff (No)	PI's involved
■ **Permanent doctoral programmes**		
PhD; Wood Biology and Wood Technology	10	Finkeldey, Kües, Militz, Polle, Schütz
MSc/PhD; Biodiversity and Ecology	15	Herrmann, Leuschner, Polle, Reitner, Schütz, Tscharntke, Vidal
MSc/PhD; International Programme for Agricultural Science in Goettingen	15	Becker, Isselstein, Marggraf, Qaim, Schlecht, Tscharntke, Vidal
PhD; Forest Sciences and Forest Ecology	18	Beese, Finkeldey, Hölscher, Kleinn, Krott, Kües, Polle, Schütz, Veldkamp
PhD; Agricultural Sciences	24	Becker, Isselstein, Marggraf, Qaim, Schlecht, Tscharntke, Vidal
MSc/PhD; Environmental Informatics	12	Beese, Finkeldey, Kleinn, Leuschner, Polle, Schütz
PhD; Applied Statistics and Empirical Methods	12	Klasen, Kleinn, Schlather
MSc/PhD; Agroforestry	10	Becker, Finkeldey, Hölscher, Isselstein, Kleinn, Schlecht
PhD; Governance of Biological Resources	10	Herrmann, Klasen, Krott, Marggraf, Qaim, Stoll
PhD; Resource Analysis and -Management	10	Kreisel
PhD; Geosciences	15	Reitner

Degree programmes	Teaching Staff (No)	PI's involved
■ **Temporary doctoral programmes**		
RTG 1024 Interdisciplinary Environmental History	10	Herrmann, Krott
RTG 1086 The Role of Biodiversity for Element Cycles and Biotic Interactions.	12	Beese, Leuschner, Polle, Tscharntke
Haeckel RTG Biodiversity in Soils	10	Leuschner, Tscharntke
Haeckel RTG The Northeim Grassland Management Intensity Gradient	10	Leuschner, Marggraf, Tscharntke

The Principal Investigators are in charge of lectures and supervision of both Master and PhD students in Goettingen. The spokesperson of a doctoral programme benefits from a reduction of teaching obligations. Senior researchers in GGTE come from different fields of natural sciences, life sciences, economics, law and humanities. The commitment of these colleagues lays the foundation for creation and maintenance of interdisciplinary PhD programmes within GGTE. GGTE is also strongly supported by associated members such as junior group leaders, who can serve as members of thesis committees.

In addition to the Principal Investigators (CVs in Appendix 6.7) involved in the doctoral programmes, there is a number of additional senior researchers, who are an indispensable asset to the research and study programmes of GGTE. To name all of them would exceed the scope of this application, but those whose expertise is vital for the programmes and who have already retired or will retire in the next few years, should be noted: Prof. Gravenhorst (Bioclimatology), Prof Sloboda (Eco-Informatics), Prof Schaefer (Animal Ecology), and Prof Beese (Soil Sciences). The university has made a commitment to refill these positions without any delay in order to sustain the success of GGTE.

3.2.4 Interface to undergraduate studies and postdoctoral qualification

GGTE wants to offer a smooth transition 'from school to profession' in the field of Environmental Sciences in the future.

By establishing and accrediting Bachelor and Master Programmes throughout the university, first steps have been made to provide a smooth transition from undergraduate to graduate studies. The seven BSc programmes of the seven faculties integrated in GGTE award the respective degrees and form a sound basis for consecutive MSc programmes.

In addition to MSc programmes, integrated MSc/ PhD programmes are also offered (see Table 4). Students finishing the undergraduate courses with excellent results will be encouraged to carry on towards a PhD degree within GGTE. A regular contact between undergraduate and senior PhD students will be established.

Master programmes constitute the basis for new PhD programmes and also an important talent pool for the recruitment of excellent doctoral candidates. Initialisation of new Master and PhD programmes is thoroughly discussed between GGTE and the participating faculties for optimisation of teaching resources and dynamic response to new developments.

Students of the PhD programmes and Research Training Groups are constantly receiving training to improve both their scientific and related professional skills (see 3.2.2). Thus they will be well prepared and qualified for future academic or other professional responsibilities. Internships in particular will facilitate the transition from university to profession.

GGTE will provide bridging funds for outstanding doctoral graduates to develop a postdoctoral research project or to finish a publication. GGTE will combine support of doctoral students with fostering of postdoctoral scientists, who can act as members of thesis committees. Scholarships assigned to PhD projects under supervision of postdoctoral scientists will be an additional incentive to develop innovative research, increase scientific independence and leadership skills and enhance the engagement of this group for GGTE. Qualified senior postdoctoral researchers will be recruited as lecturers in the practical courses (see 3.2.2) and will be invited to take part in GGTE activities such as annual retreats, guest lectures and international parties. Furthermore, the GGTE office assists postdoctoral researchers in administration and career matters upon request. A specialised training for "group leader positions" (e.g. project management, leadership techniques, grant writing, teaching/didactics, good scientific practice) will be established. In addition, specific leadership training is offered to female scientists (see 4.6).

GGTE is not applying for scientific postdoctoral positions, since the University of Goettingen is requesting further positions as part of the initiative “University of the Future”.

3.2.5 Role of students, individual training programme and time-frames

Students are encouraged to suggest improvements in the design and content of the training programme. This can be done either informally throughout the year or by filling in questionnaires. Feedback from former students presents another valuable source of information, which will be used to improve existing or implement new courses. A number of courses have already been established as a result of student initiatives. Examples include the "Methods in Biotechnology" course and a workshop in Statistics.

Within GGTE, students elect their student representatives (see 4.2), who act as full members of the programme boards. They will be involved in discussions and decisions concerning the respective programmes (including the curriculum). These student representatives elect the student members of the GGTE board. The student GGTE board members participate in decisions concerning general matters of doctoral training and allocation of funds. They will also obtain a budget to award travel funds to PhD students of GGTE (see 3.2.2).

The obligatory hours of additional courses will be limited in order to emphasise the independent research of the students. Advanced methods courses, interdisciplinary courses

and seminars are usually organised as teaching blocks. This allows PhD students to arrange their project work around these particular dates. Since students spend the major part of their time pursuing their individual research projects, GGTE assigns 180 credits to the research project and only 20 additional courses.

The modular structure and the ECTS system ensure flexibility of the graduate training programmes. Students have to collect a minimum of 20 credits during their three-year PhD studies. They have to attend obligatory PhD seminars. Otherwise, students are free to organise their training programme. They have to decide which are the most suitable modules, practical courses, guest lectures, professional skills courses to complement their research projects. Internships in industry and research stays abroad offer additional opportunities. Doctoral thesis committees will provide individual mentoring in respect to the doctoral project, as well as the selection of suitable courses. This allows GGTE to accommodate and support doctoral students from diverse scientific backgrounds.

A number of measures will ensure that quality standards and time frames are kept (see 3.3.2).

3.2.6 The role of non-university cooperating partners

GGTE has a long list of cooperating partners from diverse fields (see appendix 6.5). This offers PhD students many options for internships, scientific and professional training and networking. The Principal Investigators of GGTE have already established strong collaborations with governmental (e.g. BBA, BFH, NW-FVA), non-governmental research agencies (see 2.3) and industrial enterprises (e.g., BASF, Degussa, Pfleiderer). Most of these cooperations have a long-standing history, including exchange of doctoral students, joint research projects and created job opportunities for doctoral students after graduation. These collaborations broaden the basis and facilitate the process of mutual exchange of personnel for research and teaching. This improves the transfer of knowledge and career perspectives of graduate students. In addition, cooperating partners provide training opportunities, internships, lectures, and support GGTE with external advice.

3.3 Supervision and mentoring

3.3.1 Supervision

To ensure high quality of mentoring and supervision of doctoral students, a **thesis committee** of GGTE faculty members will be formed at the beginning of a PhD project. The thesis committee is comprised of three faculty members, including the supervisor of the doctoral project and two co-supervisors. The latter should be independent from the direct supervisor. Committee members may include an associate faculty member (e.g. postdoctoral researchers or external faculty members). The appointment of external scientists as members of thesis committees is strongly encouraged, but requires prior approval by the GGTE board.

Doctoral thesis committees have two main functions: They (I) individually support and supervise students in all aspects of their doctoral work, provide critical feedback to results and their interpretation and (II) resolve conflicts between the doctoral students and the main supervisor. Experience with established international MSc/ PhD programmes shows that, while such conflicts are rare, thesis committees can be crucial to keep a project on the right track. Hence, independence of the committee members from each other is essential to guarantee impartiality.

Before each meeting doctoral students prepare progress reports and forward them to the members of the thesis committee. During a meeting, students present their work and discuss the progress with the members of the committee.

Supervising GGTE faculty members meet regularly to discuss current matters and improvements (i.e. the council of mentors), which constitutes an additional level of quality control. The council reports to the GGTE board. Such matters can be forwarded to the general assembly upon invitation by the spokesperson of GGTE (see 4.1.3).

Conflicts have to be resolved at different levels. This depends mostly on the nature of the conflict and the people involved. Generally, the first level is the student's supervisor and the thesis committee. The ombudsman as well as the institutional equal opportunities officer can get involved. Student representatives play an important role in communicating problems to the advisory board and decision-making committees. An ombudsman system is already established and deals mainly with ethical problems (e.g. scientific misconduct) and conflicts between students and their supervisors. The ombudsman is elected by the general assembly and the position is independent of institutional hierarchies. GGTE will continuously further its concepts of supervision to ensure the highest quality standards. It is expected, that most conflicts can be resolved for the benefit of the student. Conflict resolution might require the presence of external committee members on site (and thus funds for travel and accommodation are needed).

3.3.2 Supervision and mentoring structure

Within a PhD Programme doctoral students mainly work on their research projects. They are part of a scientific group and are supervised by the leading professor. According to the new regulations of the University of Goettingen, each student has two co-supervisors in addition to their principal mentor (i.e. the thesis committee). The doctoral students can suggest these two additional mentors within the first six months of the project. The members of the thesis committee have to be approved by the GGTE board. The GGTE coordination office offers assistance in identifying a research project and suitable committee members.

The anticipated time for completion of a doctoral thesis is three years (see 3.1.2). Exceptional circumstances justify a six-month extension, which can be extended up to a maximum of one year. To avoid delay, there are a number of measures that ensure students' progress:

- Thesis committee
- Student progress seminars (with thesis committee)
- Annual public presentation
- Short written report (2-3 pages) of progress for mandatory meetings with the thesis committee
- Final exam (public defence of PhD thesis)
- Evaluations and annual questionnaires
- Assemblies of students, supervisors and lecturers (feedback)
- Continuous cooperation and contact of GGTE office with all members of GGTE.

GGTE will also conduct online surveys among alumni as has been successfully done in cooperation with DAAD for existing postgraduate programmes with relevance to developing countries. Alumni will evaluate the programmes and their organisation in retrospect and provide suggestions for further improvements. GGTE also would like to know which elements of the training programmes were most useful for a future career in academics or industry (impact assessment).

PhD students work independently on their own research projects, as defined from the start. Alterations to the original thesis scope are possible due to ongoing research and results. In addition to the modules particularly aiming at the improvement of professional skills, students are continuously receiving help and advice from their supervisors and lab members as well as from fellow PhD students. Students are expected to plan and conduct experiments mainly on their own. Critical discussion of results in lab meetings or meetings with the supervisor is encouraged. However, students should come up with their own interpretations and hypotheses. Additionally, scientific publications from different research groups should be critically discussed during lectures and tutorials. All of the above supports the professional development and independence of the PhD student.

The University of Goettingen offers training and workshops on gender equality and intercultural dialogue to female and international students. In line with the gender mainstreaming activities of the university, GGTE will provide special mentoring programmes for female doctoral candidates. Many years of experience with international programmes has clearly shown the need for such actions, especially with regard to international female students from different cultural/ religious background. GGTE will also provide special mentoring programmes for female group leaders who can choose a senior female faculty member as an additional mentor on career planning and advice as well as on networking. Special funds will be available to female PhD students for conference attendance, networking activities, short-term research support as well as for attending courses in professional skills (e.g. presentation skills). GGTE will promote the appointment of equal opportunity officers (Gleichstellungsbeauftragte) in its decision-making bodies.

3.4 Other activities

The GGTE and its PhD Programmes embrace the position of the University of Goettingen that promotes and supports diversity among students and integrates them into an intercultural (scientific) community. This will allow students from different backgrounds to develop respect and understanding of each others cultures. A diverse student society also enriches graduate education by providing multiple views and perspectives that enhance research, teaching and the development of complex knowledge.

Initiatives to provide general support and services at each stage from first contact and admission beyond graduation are already implemented in the international MSc/ PhD programmes as outlined below. They need to be upscaled accordingly by the GGTE office.

- Recruitment/ first contact: Internet-based service, mailing of additional information upon request
- Selection and admission: Regular updates on application status, fast reply to questions, organisation of video-interviews and general tests of aptitude at selected locations worldwide
- Preparation for travel/ visa/ housing: Support of students with formal travel and visa regulations, immatriculation, room reservation in student residences; general information letters and individual support upon request
- Orientation weeks: 2-3 week orientation programme especially for students from abroad arriving in Goettingen at defined dates; Pick-up service upon arrival in Goettingen; group arrangements for internet, e-mail account, bank account, health insurance, residence permits, housing and enrolment, social and cultural get together activities including a welcome party with faculty and senior students
- Information packages and individual support for doctoral candidates joining GGTE independent of these groups
- Support and encouragement of student-organised extracurricular activities throughout the doctoral studies.

At the beginning of a programme, an orientation course for international students will be organised in cooperation with the Welcome Centre of the University (as outlined in the “University of the Future” application). Furthermore, MSc and PhD programmes have international tutors to assist foreign students in getting familiar with the University and the town of Goettingen.

Foreign doctoral students are encouraged to participate in German classes offered by the Department of German as a Foreign Language of the University of Goettingen. In addition, the PhD programme coordinators organise English and German classes for their respective doctoral students. The GGTE management will announce these extracurricular activities and events on the GGTE website and in a regular newsletter. The GGTE newsletter will provide

the platform for exchange between the students (e.g. research results, cultural experiences, experiences abroad and other relevant issues).

In the international programmes, a number of cultural activities is already being organised by various students and students associations in Goettingen such as General Student Council (ASTA), International Forestry Student Association (IFSA), and Indonesian Students Association in Goettingen (PPI). In order to fulfil the Graduate School's aim to develop a vivid international student community, GGTE will encourage its students to organise cultural events, extracurricular activities and international events. GGTE will collaborate and find sponsors to organise various events such as country evenings, barbeques and Christmas parties.

IFSA will organise excursions to national parks and forests in Solling and Harz mountains to provide GGTE students with an overview of forestry and conservation practices in Germany. IFSA has also established a "language buddy" programme, where students with different interests and abilities in languages can find friends to practice with. Various email-lists and list-serves are used students with similar interests (e.g. in a particular subject). Seminar groups make use of these mailing lists to enhance communication of their students. The GGTE will provide the platform for such communication and discussions.

4 Structure

4.1 Organisation, management and resources

GGTE will become an integral part of the newly established system of graduate studies at the University of Goettingen. This system includes three graduate schools founded by the faculties of the university: GAUSS, GGG and GSGK. These university schools define general regulations and quality standards for all PhD programmes and individual doctoral programmes, for which they provide administrative support and create synergies, whereas the faculties conduct examinations and award doctoral degrees. The next sections summarise the main responsibilities and governance structures of university schools, GGTE and doctoral programmes.

4.1.1 University schools

Responsibilities of GAUSS, GGG and GSGK are:

- General regulations regarding doctoral examinations (*Rahmenpromotionsordnung*)
- Definition of quality standards for all PhD programmes and individual doctoral programmes
- Approval and evaluation of doctoral programmes on the basis of these quality standards
- Approval of faculty members with the right to conduct examinations (*Prüfungsrecht*), if the respective degrees are awarded.

University schools comprise the following governance structures: university school boards are consisting of representatives of the participating faculties and a student representative. The spokesperson of each university school represents the respective school to the participating faculties and the President of the university. Each university school delivers an annual report to the participating faculties and the President of the university

4.1.2 GGTE: tasks and governance

Within this framework, GGTE with its particular focus on terrestrial ecosystems has the following tasks:

- develop tailor-made concepts and programmes
- encourage and support applications for programme and research funding
- promote coordination and linkages between Master and PhD programmes
- develop integrated MSc/ PhD programmes
- specifically safeguard the quality of its programmes
- maintain relations with industry and research institutions
- offer specific career services.

GGTE consists of faculty and student members of its PhD programmes who form the plenary assembly. The GGTE board consists of four faculty and three student representatives. Two of the board members represent the area of natural and life sciences, the other two the field of social sciences and humanities. The student board members should be formed by one from each of the three study years. These representatives are elected by the programme boards. The GGTE board elects a spokesperson for a renewable three-year term. The GGTE board is supported by the GGTE office, which is headed by the GGTE coordinator. The GGTE coordinator also attends the board meetings.

Responsibilities of the GGTE board are:

- Definition of quality standards pertinent to the entire realm of GGTE within the framework of the university school regulations, including interview-based admission of doctoral students (see 4.3.2) and composition of thesis committees (see 3.3.1)
- Admission and evaluation of doctoral programmes to GGTE, on the basis of these quality standards
- Selection of students for GGTE doctoral grants (see 4.1.5)
- Administration of funds allocated to GGTE
- Implementation and maintenance of the GGTE office
- Annual reports to the faculties, the university schools and to the advisory board.

Responsibilities of GGTE office are:

- Organisation of GGTE recruiting and marketing efforts (see 4.1.5)
- Logistic support of admission and selection procedures of the doctoral programmes
- Organisation and support of joint training activities (such as advanced methods courses and professional skills courses) and GGTE-wide activities (such as GGTE colloquium, extracurricular activities)
- Organisation of doctoral examinations for all GGTE doctoral students
- Organisation of GGTE-wide fund raising and alumni activities
- Preparation of the annual reports to the faculties, university schools and advisory board
- Harmonisation of PhD programmes and preparation for accreditation

The GGTE board deals with all strategic aspects of the graduate school and defines procedures aimed at increasing quality that must be met by each doctoral programme. The GGTE board will be assisted by the coordination office.
The spokesperson undertakes current transactions and decisions concerning curricula,

budget, organisation, etc. in agreement with the GGTE board and represents GGTE to the public. The general assembly meets at least once a year to discuss the report of the GGTE board (including the financial report) as well as general matters like joint curricula, integration of new graduate programmes in GGTE and measures to improve the quality of research and training.

GGTE will establish an international advisory board, whose members are nominated by the board of GGTE and appointed by the President of the university. The advisory boards consist of four representatives from industry and international organisations and at least four leading senior scientists from outside Goettingen. The latter should be experienced in graduate training and cover the major research areas of GGTE. The advisory board meets regularly, reports to the President of the university and evaluates GGTE after turn-over of the PhD programmes (three years). Funds are required to support travel and accommodation for members of the advisory board.

There are two mechanisms by which new GGTE doctoral programmes can be initiated: (I) An existing PhD programme meeting the scope and the needs for doctoral training of GGTE and adhering to the formal requirements outlined above can apply for integration into GGTE. (II) If a new PhD programme is created within GGTE, the GGTE board and the coordination office will assist in the further development of this programme. The GGTE board can allocate GGTE funds to foster the development of new PhD programmes, solicit external funding and facilitate their initial start. Following approval by the GGTE board, the spokesperson of the programme informs the university schools.

Membership of a doctoral programme in GGTE will be terminated, if a programme no longer meets the formal requirements of GGTE as outlined above and if these shortcomings cannot be reconciled within its programme board. Membership in GGTE may also end in case of failure to meet scientific standards. Adherence to scientific standards of excellence will be monitored by the scientific advisory board reporting to the President of the University.

4.1.3 PhD Programmes

Responsibilities of doctoral programmes are:

- Definition of program-specific quality standards within the framework of GGTE regulations
- Nomination of faculty members and associate faculty members (elected by the plenary assembly of each program based on written application (see 3.1.2)
- Admission of students based on interviews (see 4.3.2)
- Administration of funds allocated to the program
- Implementation and maintenance of the program administration
- Organisation of programme-specific recruiting and marketing efforts

- Nomination and approval of thesis committees
- Organisation of program-specific activities (doctoral program seminars, retreats, extracurricular events)
- Monitoring of student's curricular activities (credits)
- Organisation of program-specific fund raising and alumni activities
- Preparation of the annual reports for the plenary assembly and the GGTE board.

A programme board, elected by the plenary assembly, is responsible for each programme. It consists of faculty members and student representatives and gives an annual report to the plenary assembly.

GGTE may host both, permanent programmes, established with a long-term perspective and third-party funded programmes designed for a finite period of time. Students must be enrolled in one particular permanent doctoral programme. However, they can be additionally enrolled with one of the third-party funded doctoral programmes of the graduate school. The permanent programme will be in charge of the doctoral examinations and will always bear the primary responsibility for the student. Since third-party funded programmes are often small, they are typically run by smaller management units and have the option to delegate certain responsibilities (e.g. administration of doctoral examinations, monitoring of students curricular activities) to the GGTE board.

The spectrum of the GGTE ranges from integrated MSc/ PhD programmes such as International Agriculture Sciences (IPAG), consecutive MSc/ PhD programmes such as the Programme "Environmental Informatics" to exclusive PhD programmes such as third-party funded doctoral programmes or the regular PhD programmes of the participating faculties. An overview of the participating faculties, extramural partners and programmes is shown in Figure 2.

Figure 2: Overview of faculties, extramural partners and programmes participating in GGTE

4.1.4 Quality assurance

Surveillance of the individual PhD research projects by a thesis committee is expected to increase the quality of these projects.

Internal quality control will primarily rely on feedback from GGTE students via online questionnaires and annual GGTE board meetings with the respective student representatives for optimisation of curricula.

Moreover, alumni will be asked to provide feedback, which allows assessment of the value of different curricular elements in retrospect.

Each doctoral program prepares an annual report listing all enrolled students (including their doctoral projects, members of their thesis committees, their publications) and recent doctoral graduates. These reports are discussed by the GGTE board, which might forward specific recommendations to the individual programmes.

External quality control will primarily rely on annual reports of the GGTE board to the external advisory board. The advisory board meets regularly, e.g. on the occasion of the GGTE colloquium, to discuss the activities and achievements of GGTE. They will suggest improvements and initiate regular evaluations of GGTE, usually in three-year intervals.

4.1.5 Allocation of funds

All major decisions of the GGTE board regarding the allocation of funds from the GGTE budget is described in section 5. The GGTE office will provide administrative support to manage the finances of GGTE. Spokespersons of the GGTE programmes can apply for funds required for programme activities at the GGTE office.

The funds will be allocated by the GGTE board based on performance if applicable, i.e. when decisions on doctoral grants, faculty travel grants and employment of teaching staff are made. The university introduced performance-based allocation of resources in research (*LOM für Forschung*) in the year 2006 and is currently introducing performance-based allocation of resources in teaching (*LOM für Lehre*). The GGTE board will take advantage of these existing mechanisms.

Travel funds for short stays of doctoral students in facilities of cooperating partners and attendance of international congresses will be allocated by a committee of doctoral students under supervision of the GGTE office.

4.1.5.1 Doctoral grants

GGTE intends to assign a major part of the requested funding to individual full scholarships for PhD students. GGTE wants to support a total of about 40 to 44 excellent PhD students during the funding period of five years. The scholarships will be awarded for three years on a competitive basis. Currently financial support of students by the school is not secured and depends on the respective departments and other funding sources. GGTE wants to establish

a basis which will allow the regular support of doctoral students with scholarships. It is planned to assign six to eight grants to each of the two new doctoral programmes “Agroforestry” and “Governance of Biological Resources”. The remaining grants will be “free floaters” assigned to innovative topics linking different programmes or research areas, preferably based on proposals from postdoctoral group leaders forming interdisciplinary microgroups. However, the final assignment will only depend on the quality of the applicant and host laboratory. The programme-independent GGTE board will select eligible candidates according to quality criteria (e.g. best performance in selection process, former achievements, research experience, personal competence) as outlined in 4.3.2. In principle, the students are free to choose a lab of interest. However, the GGTE board decides on the suitability of a research group to take on an excellent student according to quality criteria such as former experience in supervision, research output (publications) and size of the group. The host lab will the provide bench space and consumables required to carry out the PhD project. The host laboratory will receive annual support by GGTE (see below). A supervision agreement is signed between the PhD student and the host lab at the beginning of the PhD project in order to assure support for the whole period of the PhD studies.
Each doctoral programme in GGTE can apply for bridging funds (I) filling gaps in financing of a doctoral student if funding is interrupted or (II) for support of a doctoral student for a short period after graduation to enable the publication of a manuscript.

4.1.5.2 Guest professorship

In order to complement research and training expertise in Goettingen required for new PhD programmes, one full professor a year will be invited for one semester (6 months) for temporary teaching and research in Goettingen. This is planned as an incentive for two new PhD programmes (e.g. guest professors in “Agroforestry” and “Governance”) during their phase of implementation. The candidate for a guest professorship will be selected by the GGTE board based on proposals by the respective PhD programme board. For instance, Prof. P.K. Nair (University of Florida) is an outstanding expert in agroforestry of temperate climates and would be a perfect candidate to complement existing expertise at GGTE within the PhD programme Agroforestry. In the long run, another goal of this initiative is to temporarily reduce the teaching load of GGTE members in order to enable them to apply for third-party funded programmes (such as research training groups or junior research groups). Thereby, GGTE wants to ensure the sustainability of this measure.

4.1.5.3 GGTE office

Employing a scientific GGTE coordinator will be essential for keeping the high quality standards of GGTE and its programmes, as well as for developing the future aims detailed in this application. Financing of this position and the assigned secretary has been assured by the President of the university. Furthermore, the GGTE office will be financed by the

university once funding has expired. Due to the large number of existing programmes, some of which without any central management structures, an additional position for a programme manager and part-time (0.5) secretary is required. Their task will be to integrate existing programmes and to provide support in their administration (see 4.1.3). In addition, they will support GGTE management and activities by coordinating and harmonizing teaching structures. The funding of the position of this programme manager at the GGTE office will be absolutely crucial for keeping the high quality standards of the PhD programmes, as DFG and DAAD funding of the international programmes expired in 2006.

4.1.5.4 Language teacher and professional skills trainer

GGTE will employ certified language teachers on a teaching contract (200 hours per year) to give weekly German classes (beginners and advanced) to international students. A basic knowledge of the German language is important for everyday life, especially in one's free time. In addition, Scientific English courses will be established for all interested students. Excellent English communication skills are crucial for oral or written presentation of research results. GGTE funds will be allocated to language and professional skill training which cannot provided by internal experts.

4.1.6 Cooperation and Interaction between scientists

The GGTE office will set up and maintain the GGTE website which will outline application procedures, comprehensive information about courses, lectures and formal guidelines. Furthermore, there will be a password protected database containing names, e-mail addresses, thesis committees, technical expertise and major lab equipment of all current doctoral students. This information will help to identify potential cooperation partners within GGTE. Personal contacts between members of temporary and permanent doctoral programmes and scientists of research units and the collaborative research centres will be facilitated by joint excursions and workshops. The annual retreat of the doctoral programmes will foster team spirit and corporate identity of doctoral students as well as supervisors. The annual GGTE colloquium will increase awareness of interesting work in other groups and establish contacts between students of different programmes. All these initiatives are apt to create an inspiring atmosphere of interdisciplinary exchange as well as personal identification with the goals of GGTE.

4.2 Premises

GGTE builds partly on existing structures of partner institutions, in particular on those institutions currently in charge of the respective activities. Thus the office facilities of CeTSAF and FERC will serve as infrastructure for GGTE and provide well-functioning structures and space to accommodate the staff of the graduate school. However, some rooms still need to be equipped with PC, printer, fax, telephone etc. The partners mentioned are already

working closely together as a well-functioning team and take care of crucial parts of GGTE activities including the coordination and administration of larger international research programmes (such as SFB 552), international degree programmes, international alumni activities and the service centre for international students. They are based at Büsgenweg 1 and 2, close to the majority of the participating researchers. Further space for additional offices is available and will be provided on the ground floor of Büsgenweg 1 (CeTSAF).

The doctoral students will work in their respective research groups and labs at the different institutes, which will provide an appropriate working place and research environment. There are plenty of adequately equipped seminar rooms available.

4.3 Doctoral candidates

4.3.1 Size of GGTE

Currently more than 300 PhD students are enrolled in the PhD programmes of GGTE faculties. Each permanent doctoral programme will admit on average seven doctoral candidates per year to GGTE. Overall the graduate school will admit more than 80 doctoral students per year (Table 5). At full capacity more than 300 PhD students at a time will be enrolled in permanent and temporary PhD programmes of GGTE.

All doctoral students are enrolled at the University of Goettingen throughout their doctoral studies, enjoying the full benefits of university membership and full access to university resources.

Table 5: Number of PhD students in permanent degree programmes

Permanent Degree Programme	Number of PhD Students per year
PhD; Wood Biology and Wood Technology	7
MSc/PhD; Biodiversity and Ecology	7
MSc/PhD; International Programme for Agricultural Science in Goettingen	7
PhD; Forest Sciences and Forest Ecology	9
PhD; Agricultural Science	12
MSc/PhD; Environmental Informatics	7
MSc/PhD; Applied Statistics and Empirical Methods	7
PhD; Agroforestry	7
PhD; Governance of Biological Resources	7
PhD; Resource Analysis and Management	5
PhD; Geosciences	5
Total per year	**80**

4.3.2 Recruitment strategy and process

As outlined in section 3.1, GGTE aims to recruit outstanding PhD candidates from all over the world. With respect to the research foci of GGTE, the University of Goettingen is internationally well known and ranked among the top Universities and research institutions. Additional promotional activities need to be established and consolidated with existing ones. In addition, strategic partnerships need to be strengthened. GGTE promotion strategies will build on existing contacts and networks, international alumni activities, international conferences and its own homepage in order to increase its visibility and to promote attractiveness. Further development of these activities requires extra funding.

Building on already existing and established procedures, for example in the international PhD programmes, GGTE will employ the two conventional routes of recruitment, i.e., external personal applications to individual researchers and recruitment from local Master programmes. This will be complemented by joint and coordinated efforts of GGTE on behalf of all doctoral programmes. In addition, the programmes and available scholarships will be advertised internationally to encourage worldwide applications from outstanding students.

4.3.2.1 Application procedure

Students apply for admission to a doctoral programme by a preliminary online registration on the GGTE website (Figure 3). They are required to express their interest for particular doctoral programmes, a specific faculty member, and, if applicable, a specific project.

Recruitment of PhD students will take place twice a year. GGTE scholarships are to be awarded in 2008 and 2009. Furthermore, individual projects supported by extramural funding will be announced.

Hence there will be two types of application: (I) application of students to individual faculty members and (II) applications resulting from coordinated recruitment efforts of GGTE. All students have to pass the selection process of GGTE in order to be admitted.

Successful online registration is confirmed by e-mail, stating a registration number, which will be required for the application and future correspondence. Electronic registration accelerates the selection and admission process but does not substitute signed paper version of the required documents. In a second step, the application form can be downloaded or processed online (as PDF file), which asks for all relevant details. Two paper copies of the completed form must be mailed to the GGTE coordination office together with all required documents (i.e. CV, academic achievements and degrees, research and teaching experience, publications, scholarships, prizes and awards, motivation letter, official transcripts, records of study, diplomas or certificates, a recent certificate of proficiency in English, and two reference letters). A checklist of all documents will be provided on the webpage. Programmes may demand written test of aptitude (analogous to the American Graduate Record Examination, GRE).

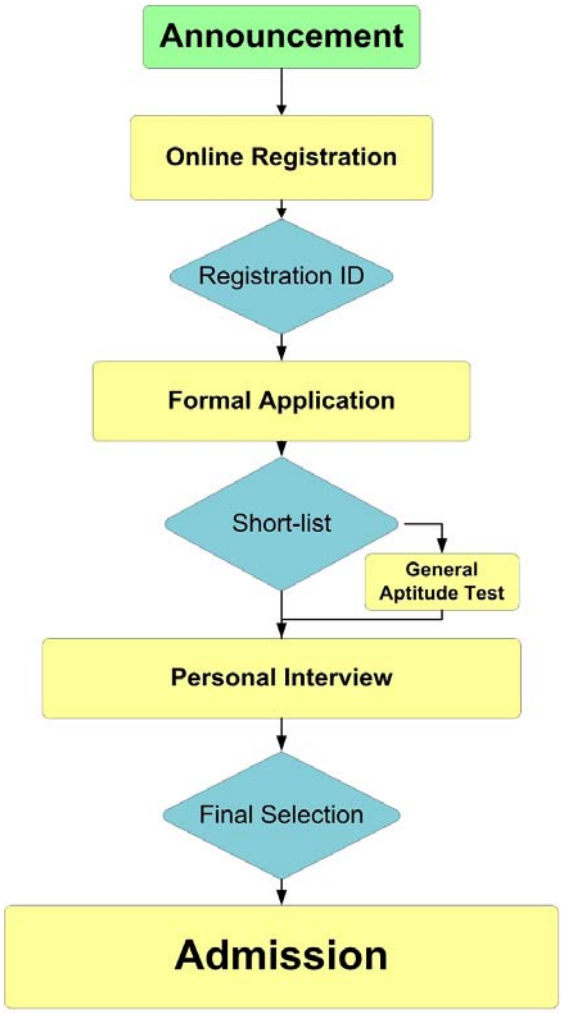

Figure 3: Application and recruitment process

The GGTE office will verify that each applicant fulfils the formal requirements.
Selected students will be invited for interviews to Goettingen. Alternatively, interviews may be conducted abroad by delegations of the GGTE board. Admission criteria are as follows:

- Excellence of qualification and performance
- Opportunities for research (e.g. acceptance by host lab)
- Secured funding.

4.3.3 Resources

GGTE can build on established well-functioning webpages, databases and office structures for the admission and application procedure. These have been successfully implemented by the PhD programme IPAG and CeTSAF. However, these existing structures need to be made available to other programmes. Coordination offices for third-party funded programmes exist, except for the new programmes to be established by GGTE. Service structures are available, but need to be harmonized. However, the current number of staff is insufficient to coordinate and administrate all programmes (see 4.4). Thus extra funding is required. Based

on previous experiences, GGTE will to employ one programme manager and a part-time administrative assistant (0.5) to support the installation of the new programmes, harmonize programme structures and support the GGTE office.

4.3.4 Strategies to ensure a diverse, high quality student population

Currently the faculties of Agriculture, Forest Ecology and Forest Sciences alone host 943 MSc and PhD students, 30% of which are international students from 74 countries. For the distribution of scholarships the candidate's quality is considered first. If further scaling down is necessary, the appropriate geographical representation will be also considered. Alumni conferences and international workshops offer potential PhD candidates from different countries the opportunity to personally meet professors and potential supervisors and discuss research interest and topics (see 3.3).

4.3.5 Integration of doctoral candidates into the research environment

The participating faculties have a high international profile with a long tradition in international postgraduate programmes networking. As a pioneer in Germany, the Faculty of Agricultural Science already offered an international MSc programme back in 1975, soon to be followed by the Faculty of Forest Sciences and Forest Ecology. Together these two faculties offered a MSc in "Integrated Tropical and Subtropical Agriculture and Forestry" in 1991, the first MSc with English curriculum in Germany. Today these faculties offer many different MSc programmes in English. This provides a sound basis for various international PhD programmes with high international profile. This also applies to the research programmes, such as the Collaborative Research Centre 552 (SFB 552) "Stability of rainforest margins in Indonesia (STORMA)" which is one of only two international SFBs supported by the German Research Foundation DFG.

PhD students in GGTE will experience a unique research environment in the field of sustainable utilisation of ecosystem functions and services. While the State Library of the University of Goettingen is one of the largest and most modern facilities of its kind and provides a basis for successful literature search, the laboratories of the participating institutions provide a state-of-the-art research environment. The participating researchers and lecturers (see appendix 6.5) of the programmes have outstanding academic records and are well-experienced in the supervision and guidance of international students.

Joint courses and activities across programmes and disciplines will not only provide an excellent environment for doctoral research-oriented education, but also intensify the ties between university and non-university research groups. The broad spectrum of high-level courses and activities offered will tremendously increase the attractiveness of the graduate school for potential students.

4.3.6 Status of students within the graduate school

Doctoral students join the graduate school at the time of admission to a degree programme of GGTE. They have access to all compulsory or elective modules offered by the graduate school. At this stage, individual thesis committees will be set up to guide, supervise and support each student. An orientation phase before the start of the project helps students to get to know the research facilities and educational features of their programmes. They will also establish a corporate identity from the beginning promoted by a joint welcome party and a joint introduction to the administrative procedures and the online examination administration software “FlexNow” (which is the standardised tool of the examination procedures). This orientation period is organised by the graduate school in close cooperation with the degree programmes. During the doctoral studies, seminars of interdisciplinary character will frequently bring together students of different programmes. These seminars will broaden their scientific horizons on the one hand and form an interdisciplinary team of young researchers on the other. Cultural events for all students will complement these activities at programme level.

The doctoral students within GGTE are enrolled with the University. They will be introduced to the University during the orientation phase at the beginning of their studies. This will be followed by activities during the German Language classes (for international students) at the University, deepening their knowledge about and their affiliation to the University of Goettingen as their Alma Mater. Besides academic issues, these activities also include cultural events and sports.

4.3.7 Funding of doctoral candidates

The majority of the GGTE doctoral candidates will be financed by extramural funding solicited by the supervisors in individual or cooperative research proposals, and to a smaller extent by individual fellowships for individual students. A significant part of GGTE funds will be assigned to doctoral grants as detailed in 4.1.5.1.

4.4 Staff

4.4.1 Current staff situation and expected development

In recent years the Georg-August University of Goettingen used the generational change within the faculty for the recruitment of a number of excellent scientists within the field of GGTE ranging from a variety of ecosystem related biomolecular disciplines (Finkeldey, Kües), ecological disciplines (Leuschner, Schlather, Schütz) and land-use disciplines (Hoelscher, Kleinn, Schlecht) to ecosystem related social sciences disciplines (Klasen, Qaim, Stoll). This generational change is ongoing. Well-known principle investigators like Prof. F. Beese (Soil Science and Forest Nutrition), Prof. Dr. G. Gravenhorst (Bioclimatology), Prof. Dr. B. Herrmann (Historical Anthropology and Human Ecology), Prof. Dr. W. Kreisel (Social and Cultural Geography), and Prof. B. Sloboda (Eco- Informatics) will retire within the next

five years. These faculty positions will be refilled by excellent scientists without delay. The functioning of GGTE will not be compromised by these changes, because of the high quality of senior faculty members at the respective institutions who will provide support to future faculty members. Moreover, excellent, well renowned scientists with a wealth of experience and a long perspective as faculty members of GGTE (Becker, Isselstein, Krott, Marggraf, Militz, Polle, Reitner, Tscharntke, Veldkamp und Vidal) form the backbone of research and training in ecosystem science.

The scientific coordinators of two doctoral programmes have been financially supported by the German Academic Exchange Service (DAAD) as part of the program series "International Postgraduate/ Doctoral Programmes" (IPP/PHD). However, DAAD funding expired in December 2006. Upscaling the achievements of these doctoral programmes will require a lot of administrational and organisational effort. Thus, funding for programme management is essential.

The GGTE coordination office will be staffed by the university with a scientific coordinator (Managing Director) and a secretary. The position of the programme manager and a half-time secretary will be financed by the GGTE grant. The university has agreed to provide sustainable funding for these positions after the funding period. The coordination office will closely collaborate with the GGTE board and will maintain close contact with the school's doctoral programmes and participating faculties. It will assist all decision-making processes of the graduate school and offer administrative assistance to its programmes such as verifying the formal eligibility of students for admission (e.g. evaluation of foreign degrees), administration of funds and recordkeeping. Smaller programmes within the school may delegate the administration of doctoral examinations to the GGTE coordination office. The coordination office will manage the graduate schools responsibilities. In close collaboration with the public relation office of the university, it will be responsible for establishing, maintaining and promoting the corporate identity of the school.

GGTE wants to employ more students as well as alumni on an hourly basis to support various tasks (including social activities, administration of websites, etc.).

In addition, the position of international relations officer/ fundraiser, who will be responsible for co-operations with local authorities, international co-operations and recruiting sponsors, is already established at the University of Goettingen.

Currently a German teacher is employed on an hourly basis (*Lehrauftrag*) for 200 hours/year. GGTE plans to continue offering German lessons to all international students. In addition, an English teacher is engaged to teach classes in "Scientific English".

GGTE office regularly receives announcements of international postdoctoral vacancies from GGTE members and will offer advice to PhD graduates looking for postdoctoral positions. The GGTE office will follow the career tracks of former students, actively promoting the return of outstanding Alumni to the region of Goettingen.

4.4.2 Measures to enable research staff to participate in research training

Faculty members may participate in several programmes. Currently, approximately 40 faculty members are involved in doctoral training within the existing programmes. After the implementation of the planned programmes, the number of GGTE faculty members is expected to exceed 50. Postdoctoral researcher can also become members of thesis committees, thus, taking responsibility for the supervision of doctoral research projects.

4.4.3 New professorships and Independent Junior Research Groups

No funding will be requested for establishing additional professorships. However, it is planned to reserve a portion of the GGTE grant for guest professors, in particular for newly established doctoral programmes, the advanced methods and professional skills courses.

The University of Goettingen has applied for positions for new junior research groups in the context of the “University of the Future” application (funding line 3). Furthermore the university made the commitment to refill all positions central to this application.

4.5 External visibility and networking

4.5.1 Public outreach activities

The University of Goettingen has a range of activities for pupils, youngsters, parents, teachers and everyone interested in the field application of science and research.

The Forest Ecosystem Research Centre (FERC) organises the “Erlebnis Wald” every year for students and public visitors. It provides close experience of earth cave, earth laboratory and meteorological measuring towers in a large open area to its visitors to provide the practical field knowledge of various forest ecological systems and landscape management.

Goettingen is famous for its diverse intercultural activities. Together with the town council, the University of Goettingen organises the Goettingen week of "*Wissenschaft und Jugend*" every year. It attracts many students, also from outside Goettingen. Many institutes from the University participate in this event offering special lectures, guided lab tours, etc.

A bridge between school and university is X-LAB, Goettingen’s laboratory for young people. All over the year it offers courses in experimental work in natural and life sciences for German and European pupils. The university (including all faculties of GGTE) strongly supports these activities by providing participating staff. At X-LAB both students and teachers have the opportunity to carry out challenging and relevant experiments together with university scientists.

The Learning Resources Centre (LRC) of the State and University Library has emerged as a vivid place for learning and working. It is open to students and scientists alike and offers a wide range of services. It provides excellent conditions for literature research, formatting, editing, printing and publishing. The LRC staff is always ready to advise and technically support the visitors.

To increase the public understanding of science, courses and lectures are organized on a regular basis by different institutes in collaboration with various public institutions in Goettingen. The university already gained significant public visibility via its websites and published materials such as the brochure “Wissen”.

The university botanic garden hosts a unique collection of plant species from all over the world and offers excellent opportunities for learning and recreation. It has one the largest collections of woody species in Germany (> 2000 from all over the world). The location of the old botanical garden near the town centre attracts many students, teachers and city dwellers. Friendly staff offers guided tours and presentations to the interested visitor.

4.5.2 Integrating international doctoral candidates

The University of Goettingen is proud of the scope and diversity of its international students. It is committed to satisfy their special needs by providing unique support, advisory and advocacy services. Currently, 41 to 52% of all PhD students in the faculties of Agriculture, Biology, Forest Ecology and Forest Sciences are international students. 10 to 20% of all Master students in these faculties also come from abroad. Data collected by the university documents a high internationality with respect the recruitment of gifted students. Besides housing the offices of the graduate schools, a “Faculty Club” aiding the integration of international scientists will be established in the redecorated Gauss observatory of the University of Goettingen.

The GGTE international student office encourages a well-informed and culturally respectful university community. In addition to academic information and guidance, the GGTE international student office will provide information on any non-academic matter concerning international students. For example, students are encouraged to take German classes, which are essential for integration in the German society and understanding the German culture. The GGTE international student office builds on the long tradition of the international MSc programmes in Goettingen in providing support to international students in their transition to university life and to life in Germany. For students interested in working, studying and travelling abroad, the International Office at the University of Goettingen provides a wealth of information and advice.

GGTE provides a high standard of support and services for integration of international students. This will significantly increase the attractiveness of the graduate school for students from abroad. Moreover, the multinational community of young scientists in GGTE will foster and extend existing and future international networks.

4.5.3 Networking and collaboration

GGTE follows three major aims in its networking and collaboration strategy:

- increasing the expertise and coverage in the field of ecosystem sciences
- increasing the social impact of scientific results on terrestrial ecosystems
- increasing the attractiveness of GGTE to excellent candidates and the “market value” of its graduates.

4.5.3.1 National networks and collaboration

At the regional level GGTE extents its network via a cooperation with the University of Kassel. The result is an increased coverage of the field of ecosystem sciences. The University of Kassel contributes its expertise in organic farming to the GGTE foci of integrated farming and farming with genetically modified plants. For GGTE the cooperation means joint research activities in RTG 1397, SFB 552, expanded resources in teaching, expanded choice of courses for the students in the field of organic agriculture, additional experimental field sites, and a fortification in the profile for agricultural land use in the tropics. Since 2005 the Faculty of Agricultural Sciences in Goettingen is in close cooperation with the agricultural faculty of the University of Kassel at Witzenhausen. The professorship in “animal husbandry” (held by Prof. Eva Schlecht) is equally associated with both faculties. The next joined professorship will be established in the discipline “sociology in agriculture”. Future development of the GGTE-cooperations aims to overcome administrative barriers arising from the affiliation of students with universities in different federal states.

By participation in seven DFG Research Units, GGTE faculty is linked to more than 30 ecosystem-related research groups in Germany. Fifteen projects with strong applied aspects, which are supported by substantial federal funding (BMBF) relate GGTE to more than 30 industrial enterprises in Germany. The "Competence Network for Sustainable Wood Utilisation" (NHN) has been initiated in the year 2002 in order to connect institutes of the University of Goettingen with research foci in the Forest-Wood-Chain with other educative institutions (University of Braunschweig, Fachhochschule Goettingen/Hildesheim/Holzminden), research stations (Wilhelm-Klauditz-Institute Braunschweig, the North-West-German Forest Experiment Station) and relevant industries.

An agreement with the State Forest Enterprise of Lower Saxony on the "Forest Research Landscape Solling" provides a range of different research sites to the university (input from forest administration to science). It also ensures the application of forest research results into practical forest management, as well as advanced education of practitioners (input from science into forest administration). This creates mutual benefit and increases the social impact of scientific results in ecosystems research.

Major components of future networking at national level will be:

- carrying out part of PhD projects in the laboratories and field site facilities of the participating cooperation partners,
- affiliation of suitable PhD projects within GGTE with the newly founded German Biodiversity Exploratories (''Exploratories for large-scale and long-term functional biodiversity research'', funded by DFG) and use of their well-equipped and intensively monitored sites,
- partnering of scientifically related PhD projects between GGTE and appropriate industrial partners.

4.5.3.2 International networks and collaboration

On the international level increasing expertise and accessibility of research sites is provided by numerous international collaborative research projects such as SFB 552 for the Asian tropics and DFG FOR 816, BMBF-Biosys, BMBF-Bioteam for the tropics of America.

Moreover, European networking is accomplished by a EU-Marie Curie Research and Training Site, several Networks of Excellence like EPOCH “European Research Network on Excellence in Processing Open Cultural Heritage”, ALTER-NET “A long-term Biodiversity, Ecosystems and Awareness Research Network”, and EVOLTREE “Evolution of Trees as drivers of terrestrial biodiversity” and several other integrated projects. Further relevant integrative projects were EUROFACE and ESTABLISH.

International networking will be the key to GGTE's recruitment of the most excellent international students in the field of ecosystem-related sciences. In this endeavour, GGTE can draw on an immense number of already existing international contacts, which will be further extended according to the new PhD training programmes envisaged.

European cooperation and collaboration in education is further fostered by participating in various SOKRATES/ ERASMUS-activities, joint European activities for international Master-Degrees (SUFONAMA etc.) and networks such as NATURA (Network of European – tropical and subtropical oriented - Universities and Research Associations), ETFRN (European Tropical Forest Research Network), EADI (European Association of Development Research and Training Institutes) etc. Through CeTSAF, GGTE is also member of SEARCA (South East Asia Regional Centre of Agriculture) as the only European partner.

From full service packages for international students and guest scientists to the international alumni activities with networks in South-East Asia, Latin America, Africa, the Arab region and Iran (awarded as a best practice example by the German Academic Exchange Service DAAD), GGTE stands for a professional and internationally highly competitive Graduate School covering the whole range of activities.

Major components of future networking at international level will be:

- intensive use of the facilities of international cooperation partners by GGTE PhD students for initiation of international collaboration projects,
- promoting the design of joint PhD programmes with strategic partners in Europe and overseas,
- partnering of scientifically related PhD projects between GGTE and appropriate international organisations for enhancing mutual transfer of knowledge.

4.5.4 Special measures to integrate doctoral students into international academic community

GGTE aims not only to promote scientific excellence in its students, but also to provide them with the opportunity to develop as scientific leaders. For that the students need to acquire a comprehensive set of professional skills. As mentioned in section 3.2, GGTE will encourage individual PhD programmes to provide professional skills trainings such as intercultural communication, presentation techniques and scientific writing. GGTE will provide financial support for the doctoral students to attend conferences, workshops and advanced methods courses.

Doctoral students associated with GGTE will be encouraged to work as a visiting fellow or during short term stays at a university or non-university research laboratory abroad, if such projects are expected to provide a significant contribution to their thesis projects. In this sense GGTE will support collaborative research between its doctoral students, faculty members and scientists outside Germany.

4.6 Gender equality

The Goettingen University plan for women's promotion has already established schemes that have reached top positions in the "Gender Aspect" University Ranking (Centre of Excellence Women and Science, CEWS). Nevertheless in Goettingen, as in most German universities, women are still underrepresented (see Table 6). This is evident especially at the levels of professors and the scientific personnel. In contrast, at undergraduate and graduate level, the gender distribution is well balanced, with a slight overrepresentation of female students in biology. This discrepancy between the percentage of female graduates and the percentage of appointed female personnel at the university raises the questions: which career paths are followed by women and how to foster their commitment to science? To better understand the problems and difficulties that female graduates experience and to develop adequate solutions for its students, GGTE has built an alumni programme and actively seeks feedback on the further professional career of its degree holders.

A concrete goal of GGTE is to increase the proportion of female graduate students in those faculties with lower percentages of women. Measures include GGTE commitment to gender

equality with its programmes, broad advertising PhD positions and encouraging excellent female students to apply, and interviewing candidates with the support of female representatives from the faculties. During their studies, the professional chances of females will be increased by suitable monitoring and personal mentoring as how to take further steps in their career in relation to their profession and family situation. Together with the local town authorities of Goettingen, the university has recently established a kindergarten that offers parents places for their children whilst they work or study. There are ongoing efforts to identify the actual need and increase the total number of nursery places.

GGTE will be attentive to the development of dual careers. On the long run, recruiting and supporting excellent female PhD students in GGTE as well as supporting family situations (for instance by grants for female students that have to intercept their project due to pregnancy/ caretaking of newborn children) should also render higher percentages of women in the scientific personnel and amongst the professors.

Table 6: Gender distribution in the faculties participating in GGTE (as of 2006)

Faculty	**Total (% female)**			
	Students	Doctorates	Professors (including junior professors)	Scientific staff members (excluding professors)
Agricultural Sciences	1140 (41%)	49 (47%)	27 (11%)	126 (45%)
Biology	2181 (66%)	108 (47%)	40 (15%)	221 (47%)
Forestry and Forest Ecology	799 (32%)	27 (30%)	16 (19%)	102 (19%)
Economic Sciences	3141 (38%)	36 (19%)	18 (6%)	102 (35%)
Law	2336 (46%)	62 (37%)	23 (22%)	66 (39%)
Geosciences and Geography	655 (40%)	15 (47%)	18 (17%)	90 (38%)
Mathematics	752 (29%)	21 (33%)	19 (11%)	39 (13%)

Note: "Students": Number of all undergraduate and graduate students enrolled.
"Doctorates": Number of doctoral degrees awarded.

Concrete initiatives are required to ensure that qualified women are recruited to PhD positions and that they are retained and supported in their further career development in Goettingen. GGTE plans the following initiatives to specifically attract and retain qualified female applicants:

- Specifically seeking and inviting potential female scholars to apply for the positions. Any requirements for the position that might discourage female applicants (e.g. age limits that do not take into account career interruptions, particular work hour arrangements, etc.) will be removed. Here the gender plan of the biological faculty (http://www.uni-goettingen.de/de/sh/34569.html) gives useful guidance
- Providing special support for work-family issues. The graduate school will set aside funds to pay for regular and emergency day care (by pre-purchasing full-day crèche and kindergarten places) to support scholars with little children. Based on positive experiences with parent-and-child rooms, which have first been established in 2005 in labs participating in GGTE, it is already planned (see funding line 3) to establish 20 additional parent-and-child rooms in University buildings. Additionally the capacity of the childcare facility will be increased by 35 places, with opening hours from 7.00 a.m. – 9.00 p.m., five days a week
- Providing special mentoring programmes for female group leaders. They will have the option to chose a senior faculty member as an additional mentor advising them on career plans and networking issues
- Providing special funds to female PhD students (and female group leaders) for conference attendance, networking activities, short-term targeted research support, and special course offerings for research and presentation skills
- Providing training for scientific and management personnel concerning gender bias in the recruiting process.

5. Overview of the graduate school's resources

GGTE has already seven permanent and two temporary, third-party funded PhD programmes (Graduiertenkollegs) of high international reputation. Several of these programmes are taught in English and attract PhD students from all over the world. In addition the implementation of four further permanent (two funded by GGTE) and two temporary programmes is planned. The quality of existing and newly established programmes can be significantly increased, if the most excellent students are selected in a well-defined and competitive manner. Thus outstanding students can be recruited regardless of their personal financial situation. To achieve these goals novel structures need to be established and incentives such as scholarships and summer schools need to be offered. The funds applied for in this proposal will be used to initiate this competition for the best students worldwide, to increase the international visibility of the GGTE, to generate a socially and scientifically attractive environment with novel PhD programmes and to establish efficient management structures.

5.1 Requested funding

5.1.1 Staff Funding

Full scholarships are required to support PhD students. GGTE wants to support about forty to forty-four PhD students during the funding period of five years (see 4.1.5.1). Calls will be for 2008 and 2009, each open for about twenty-two scholarships (from altogether about seventy to ninety) awarded for three years on a competitive basis. Six to eight grants will be assigned to each of the new doctoral programmes "Agroforestry" and "Governance of Biological Resources". The remaining grants will be "free floaters". The host lab receives financial support from the GGTE on an annual basis (see below).

Due to the large number of existing programmes without any central management structures, positions for a programme manager and a part time secretary need to be established. Their task will be to integrate existing programmes, support GGTE and management activities (i.e. the coordination and harmonization of teaching activities, see 4.4.1).

GGTE will employ certified language teachers on a teaching contract (200 hours per year) to provide weekly German classes (beginners and advanced levels) to international students. In addition, students can benefit from courses teaching Scientific English (see 4.1.5.4).

GGTE plans to employ students on an hourly basis (on demand) to support the GGTE office in conducting workshops and extracurricular activities as well as for maintaining the web pages and coordinating alumni activities (4.1.6).

Furthermore, one full professor a year will be invited for a one semester (i.e. six months) to

Goettingen (for research and teaching within the school) as incentive for two new PhD programmes “Agroforestry” and “Governance of Biological Resources” (see 4.1.6).

We therefore ask for the following funds (* all numbers are in thousands of Euros):

Salary scale	number of staff members*	2007	2008	2009	2010	2011	2012
Scientific staff							
W3 professor (1 semester per year)	0,5			47	47	47	47
Doctoral scholarships a 1.250 € per month (2 cohorts)	22 22	0	248	330 82	330 330	82 330	0 248
Student assistants	10	10	60	60	60	60	50
Total scientific staff		**10**	**308**	**519**	**707**	**519**	**345**
Non-scientific staff							
E13 programme manager	1	15	59	59	59	59	44
E5 – E12, Secretary	0.5	2	18	18	18	18	13
Teaching (Lehrauftrag) 200 h/a German/English 25 €/h	2		10	10	10	10	9
Total non-scientific staff	**3.5**	**17**	**87**	**87**	**87**	**87**	**66**

5.1.2 Other direct expenses

GGTE will invite outstanding international scientists and guest lecturers. Costs include travel, accommodation and fees for lecturers/ trainers. International scientists will be invited as thesis advisory board members, examiners for final exams as well as GGTE international advisory group members. Travel as well as accommodation will have to be paid for (see 3.2.2.1, 4.3.2.1).

Interviews are absolutely crucial for identifying the best students during the selection process. Experience gained with the international PhD programmes in Goettingen (Molecular Medicine, Molecular Biology) shows that in order to select the top twenty students, approximately sixty need to be interviewed. GGTE needs to refund travel expenses of invited candidates to Goettingen or, if more economic, of a delegation of GGTE faculty members to places in Asia or elsewhere to conduct interviews (see 4.3.2.1). Travel from abroad amounts to 300-500 € per person on average. In addition to interviews, coordinators of GGTE will have to travel to meetings and congresses concerning advanced training in the field of higher education, EU matters and others.

GGTE wants to support students presenting their research at international meetings or attending scientific summer schools. There are also plans to support short-term research stays and conferences abroad in cooperating institutions or other outstanding international institutes (see 3.2.2.1). GGTE will organise summer schools on current topics on a regular basis and invite internationally renowned experts for these events (see 3.2.2.1). Estimated

costs are derived from travel, accommodation, meals, and honoraria of similar events. A one-week summer school amounts to approximately 30,000 € depending on the country of origin and honoraria for invited speakers.

Organisation of advanced methods courses will be supported by GGTE through funds for invitations of international experts and support for consumables with approximately 5,000 € each year and course (see 3.2.2.1). Annual workshops and excursions to experimental sites of other research and training groups, research units and STORMA are planned within GGTE. Funding for covering the costs for facilities, travel, accommodation, meals etc. is required (see 3.2.2.1). The activities will be supported by GGTE funds with about 15,000 € per year. Additional support will be provided by industry sponsors.

GGTE plans to advertise its programmes in international journals (e.g. Nature, Science, New Scientist, etc.) and to print flyers, posters, brochures and year books (see 4.1.2). A printed advertisement in Nature amounts to approximately 2,500 €.

Alumni activities will be established involving newsletters and reunions on a regular basis. Funds will be required to support these activities.

There is a need to equip rooms with desk top computers, laptops, software or other matters (e.g. books). A number of extracurricular activities (excursions, cultural events, etc.) will be organised by the GGTE office throughout the year, also in co-operation with the International Office of the university.

Outstanding performance of doctoral students will be honoured by awarding the GGTE Prize (2,000 €). Moreover, the GGTE Lecturer Award will be awarded to one (associated) faculty member for outstanding quality of doctoral training. The prize-giving will take place during one of the degree ceremonies of the GGTE. Funds are necessary both for the awards and the ceremony to which international guests will be invited.

Babysitters will be employed by GGTE on an hourly basis to take care of babies or small children of doctoral students (see 4.6).

Host laboratories accepting PhD students from the GGTE will be supported by an annual fixed sum of a maximum of 2,000 € per student. This money can be used to cover part of the consumables or software required for the respective PhD project.

Flexible funds are necessary to deal with unforeseen situations.

Description	2007	2008	2009	2010	2011	2012
Travel and accommodation of guest lectures		30	40	40	40	20
Travel to interviews, to promote GGTE	10	70	70	70	70	60
Short-time stays abroad and Congress participation of students		50	60	70	70	30
Summer Schools		30	30	30	30	15
Advanced methods Courses Workshops		15 15	15 15	15 15	15 15	5 10
Marketing and Alumni activities	20	30	30	30	30	10
office equipment and teaching aids	10	50	25	25	25	13
Extracurricular activities	3	15	20	20	20	12
Awards		8	8	8	8	8
Daycare/babysitters etc.	10	50	50	50	50	40
Host laboratory support		44	88	88	44	44
Flexible funds		20	20	20	20	20
Total other direct expenses	**53**	**427**	**471**	**481**	**437**	**287**

5.1.3 Instrumentation

It is not planned to purchase instrumentation funded by GGTE funds.

5.1.4 Total funding requested

2007	2008	2009	2010	2011	2012
80	822	1077	1275	1043	698

5.2 Support by the university and/or other sources

5.2.1 Staff

Altogether, fourty to fifty senior scientists (supervisors and lecturers) of the University of Goettingen and partner institutes will be involved in training at the GGTE. The majority of these scientists is employed by the University, however, external partners (e.g. Nordwestdeutsche Forstliche Versuchsanstalt and others) agreed to participate both in training and research activities.

For the coordination of GGTE a full scientist position is required and one position for a secretary. These positions will be funded by the University of Goettingen by overhead funds. The university will also provide the required office space.

The scientific coordinators of the PhD programmes “Wood Biology and Wood Technology”

and of “IPAG” were funded by DFG/ DAAD until 2006 and are now supported by the University of Goettingen. The scientific coordinator of the PhD programme “Applied Statistics” is currently funded by the Government of Lower Saxony (Lichtenberg Programme). Scientific coordinators (part-time) of the Research Training Groups (GRKs) are financed by DFG funding.

Scientific staff	**funded by the host university**	**Funded by Participating Institutions**	**funded by other sources***
Supervisors and Lecturers	35-40	5-10	
Total scientific staff			
Non-scientific staff			
Coordinator of GGTE	1		
Secretary for GGTE	1		
Scientific coordinator PhD Wood Biology	0.5		
Scientific coordinator MSc/PhD IPAG	0.5		
Scientific coordinators of Research Training Groups			2
Total non-scientific staff	**3.0**		**2**

5.2.2 Infrastructure and equipment

Description	Year of purchase	Amount
Infrastructure and equipment provided by host university		
Large Outdoor Research Facilities		
3 Experimental Roofs with a Canopy Crane (FERC)	1992	650,000
Biometeorological Tower (FERC)	1998	250,000
Special Experimental and Cultivation Facilities		
2 Microcosm Units à 60 columns and GC-Analyser (Beese)	1994-2006	160,000
5 Automatic Soil Hydrological Units (Beese)	1994-2006	180,000
4 Plant Growth Chambers (Leuschner)	2006	500,000
2 Climate Chambers (Schütz)	2006	250,000
4 Climate Chambers (Schütz)	to be aquired	600,000
1 Research Glasshouse (Schütz)	2004	500,000
2 CO_2 Growth Chambers (Beese)	1994-2006	170,000
Isotope Facilities		
Analytical Equipment for Stable Isotopes (KOSI), 3 IR GCMS	1997-2006	780,000
Laboratory for Radio-Isotopes (LARI)	2001	350,000
Genomics and Proteomics Facilities		
Molecular Genetic Laboratories (Finkeldey)	2001	300,000
Sequencer (Genetic Analyzer ABI 3100c) (Finkeldey)	2001	200,000
DNA Analyses Facilities (incl. Extractors and RT-PCR) (Herrmann)	1990-2006	150,000
DNA Sequencers (ABI) (Herrmann)	1994-	350,000
S1 Laboratory for Molecular Biology (Kües)	2002	260,000
S1-Laboratory for Molecular Biology (Polle)	1999	250,000
Proteomics Laboratory (Kües)	2002	300,000
Advanced Microscope Facilities		
Transmission Electron Microscope (Polle)	1984	550,000
X-Ray Diagnostic Devices (incl. Microradiography) (Herrmann)	1980-2000	200,000
Scanning EM, X-Ray diffraction (Herrmann)	1995-	150,000
Confocal Laser Scanning System (Reitner)	2006	304,811
Titan-Laser-Saphir-System (delivery: May 2006) (Reitner)	2006	236,872
Raman Micro-Spectroscope (delivery: October 2006) (Reitner)	2006	396,000
FTIR Microscope (Polle)	2004	165,000
Microscopy Equipment and Laboratory (Kües)	2002	155,000
Light Microscopy Technologies (Polle)	1990-	100,000
Mass Spectroscopic Devices		
GC-MS Quadrupol Mass Spectrometer (Herrmann)	2000	150,000
2 GC-IR-MS Analysers (Beese)	1994-2006	350,000
1 GC-Sectorfield MS (Beese/Schütz)	1994-2006	250,000
HPLC-Electrospray-Mass Spectrometer and Computing System for Protein Analysis (Agilent 1100, Bruker Esquire 3000) (Kües)	2002	320,000
GC-MS for Analysis of Low-Weight Organic Compounds, Computing System, MS-Libraries (Kües)	2002	150,000
GG GC-MS Triple Quadrupol Mass Spectrometer (Reitner)	2003	226,311
LC/MS System (mass spectrometry) (Reitner)	2003	226,311
GC-MS/EAD (Schütz)	2002	300,000
Additional Analytical Devices		
HPLC Biomolecule assessment (Herrmann)	2000	100,000
2 ICP-Spectrometers (Beese)	1994-2006	200,000
2 AAS-Spectrometers (Beese)	1994-2006	150,000
6 Continuous Flow Units (Beese)	1994-2006	190,000
1 C/N Elementary and 1 TOC/DOC Analyser (Beese)	1994-2006	180,000
1 Micro-Calorimeter + GC (Beese)	1994-2006	150,000
Biochemical Laboratory (Polle)	1999	250,000

6 Appendices

6.1 The host university: Georg-August-Universität Göttingen

6.1.1 General information and key data

The Georg-August-Universität Göttingen (founded in 1737), is one of the oldest and most renowned German universities. For 270 years, Göttingen has been home to research facilities of considerable importance and stature: among its 130,000 inhabitants, Göttingen counts 24,600 students. Over the years more than 40 Nobel Prize winners have researched and lived in Göttingen. The University also is the most important employer of the Southern Lower Saxony region. It gives jobs to approximately 13,400 employees (researchers and staff), including 6,800 employees of our huge University Medical Centre. Göttingen University houses one of the finest and largest libraries in Germany - the State and University Library with more than 4.5 million volumes.

13 faculties offer more than 130 courses of study which can be combined in many ways as major and subsidiary study subjects. Recently 20 international study programmes have been developed, ranging from Molecular Biology and International Mathematics to Tropical Forestry. Almost all newly established programmes lead to Bachelor's, Master's and PhD Degrees instead of, or parallel to, traditional diplomas. Even though most of the courses and lectures are given in German, international programs are taught in English or – in some cases – in German and English. Since the summer semester 2007, all Students (excluding doctoral students) pay a student fee of 500 Euros per semester which will be used for quality improvements of study conditions and teaching.

In addition to the wide spectrum of choice in terms of degree programs, top-level research is also carried out at the University of Göttingen. External research money adds up to 76 million Euros in 2006. The Alexander von Humboldt Foundation has named Göttingen University to be one of the top addresses for an international elite of researchers who wish to start research-cooperations with scientific colleagues. Since its foundation, Göttingen University has been an internationally attractive university playing host to international students and scientists. Today more than 2,800 international (mostly graduate) students attend classes and / or doctoral training in Göttingen.

Since January 1st, 2003 the Georg-August-Universität Göttingen has been maintained as a public trust (Foundation under Public Law, Stiftung des Öffentlichen Rechts) – the only full-fledged university in Germany to which this applies. The interaction with a Foundation Board (Stiftungsrat) consisting of representatives from academia, commerce and state, the full right to make professorial appointments, the enhanced flexibility with regard to personnel management, property holdings and construction management, as well as financial management, have produced competitive advantages. Moreover, the introduction of study fees (Studienbeiträge) since 2007 enables the university to assign extra money to the

improvement of teaching quality and teaching facilities.

Within the scope of the Volkswagen Foundation-funded project "Feed-back autonomy as a principle of university renewal" (Rückgekoppelte Autonomie als Prinzip der Universitäts-erneuerung), which was carried out between 2000 and 2004, fundamental principles for greater autonomy of the faculties were developed. The faculties assumed full responsibility for their own budgets, and business accounting throughout the University was introduced, as well as the basic principles for performance-based allocation of resources and funds for research. Developmental plans for the years 2005 to 2010 have been drawn up in each of the thirteen faculties and these will be incorporated into a developmental plan for the whole University.

The University's faculties are the following: Agricultural Sciences, Biology, Chemistry, Economics, Forestry and Forest Ecology, Geosciences and Geography, Law, Mathematics (including Informatics), Medicine and University Hospital (School of Medicine), Philosophy, Physics, Social Sciences, Theology.

6.1.2 Student-related data in the subject areas covered by GGTE

The following table summarises the number of

- Students (undergraduate and graduate; enrolled at the University of Göttingen)
- Graduates (graduation with a Bachelor’s, Master’s, Diplom, Magister or Staats-examen degree), and
- Doctorates (graduation with a doctoral degree)

for the entire university in the years 2004-2006, as well as individually for the seven faculties participating in GGTE activities. In addition to the total numbers, percentages are indicated for female students/graduates/doctorates and for students, graduates, and doctorates from foreign countries.

Basic Data

Faculty	Students			Graduates			Doctorates		
	2004	2005	2006	2004	2005	2006	2004	2005	2006
All 13 faculties									
Total number	23,993	24,398	24,607	2,347	2,413	2,528	655	643	665
Female (%)	50.8	50.9	50.8	51.5	52.7	51.3	40.9	37.5	44.1
Foreign (%)	12.3	12.2	11.6	8.3	9.5	8.0	19.4	22.2	22.0
Agricultural Sciences									
Total number	1,050	1,113	1,140	159	165	228	46	46	49
Female (%)	37.5	40.9	40.9	44.7	44.8	36.0	34.8	41.3	46.9
Foreign (%)	21.4	21.7	18.8	23.9	20.0	13.2	45.7	41.3	40.8
Biology									
Total number	2,205	2,201	2,181	204	226	222	86	92	108
Female (%)	63.9	64.4	65.5	67.2	68.1	67.1	53.5	40.2	47.2
Foreign (%)	14.3	13.9	12.9	6.9	8.0	7.2	33.7	43.5	46.3
Economics									
Total number	3,100	3,238	3,141	326	353	427	31	27	36
Female (%)	38.2	39.1	38.3	39.9	44.8	43.8	25.8	18.5	19.4
Foreign (%)	12.2	12.8	12.9	8.0	11.9	7.7	9.7	7.4	13.9
Forestry and Forest Ecology									
Total number	681	738	799	102	107	140	8	31	27
Female (%)	29.4	32.5	32.0	31.4	35.5	28.6	25.0	16.1	29.6
Foreign (%)	19.4	19.1	17.1	17.6	12.1	11.4	37.5	51.6	51.9
Geosciences and Geography									
Total number	638	638	655	66	57	64	14	18	15
Female (%)	41.1	39.3	39.5	30.3	54.4	40.6	35.7	22.2	46.7
Foreign (%)	8.5	8.2	8.1	3.0	3.5	4.7	35.7	27.8	13.3
Law									
Total number	2,622	2,470	2,336	305	315	253	58	44	62
Female (%)	46.5	45.3	45.6	45.9	48.9	43.5	25.9	31.8	37.1
Foreign (%)	7.9	8.7	9.2	7.9	9.5	10.3	8.6	4.5	8.1
Mathematics									
Total number	672	711	752	85	67	75	13	8	21
Female (%)	30.5	29.8	29.1	34.1	28.4	28.0	15.4	0.0	33.0
Foreign (%)	17.9	17.2	16.2	2.4	13.4	10.7	53.8	37.5	28.6

6.1.3 Study programs and degrees in the faculties participating in GGTE

Faculty	Study Program *(Degree)*
Agricultural Sciences	
Bachelor	BSc Agrarwissenschaften
Master / PhD	MSc Agrarwissenschaften MSc International and Tropical Agriculture MSc Pferdewissenschaften PhD Agrarwissenschaften *(Dr.sc.agr./PhD)* PhD International Agricultural Science *(Dr.sc.agr./PhD)*
Biology	
Bachelor / Staats-examen	BSc Biologie BSc Biologische Diversität und Ökologie 2-Fächer-BA Biologie (Lehramt) BSc Psychologie
Master / PhD	MSc / PhD Molecular Biology MSc / PhD Neuroscience MSc International Nature Conservation MSc Biologische Diversität und Ökologie PhD Biologische Diversität und Ökologie *(Dr.rer.nat./PhD)* Psychologische Psychotherapie (Weiterbildungsstudiengang)
Economics	
Bachelor	BSc Betriebswirtschaftslehre BA Volkswirtschaftslehre BSc Wirtschaftsinformatik 2-Fächer-BA Volkswirtschaftslehre
Master / PhD	MSc Finanzen, Rechnungswesen und Steuern MSc Marketing und Distributionsmanagement MSc Unternehmensführung MA International Economics MSc Wirtschaftsinformatik MA Wirtschaftspädagogik MSc Wirtschafts- und Sozialgeschichte MSc Information Systems (Weiterbildungsstudiengang) Wirtschaftswissenschaften *(Dr. rer.pol.)*
Forestry & Forest Ecology	
Bachelor	BSc Forstwissenschaften und Waldökologie planned (until 2009/10) BSc, Terrestrische Ökosysteme
Master / PhD	MSc Forstwissenschaften und Waldökologie MSc Sustainable Forestry and Natural Management (ERASMUS-MUNDUS 2007/08) PhD Wood Biology and Wood Technology *(Dr.forest/PhD)* PhD Forstwissenschaften und Waldökologie *(Dr.forest/PhD)*
Geosciences and Geography	
Bachelor	BSc Geowissenschaften BSc Geographie 2-Fächer-BA Geographie
Master / PhD	MSc Geowissenschaften (2007/08) MSc Hydrogeology and Environmental Geoscience (2007/08) MSc Geographie/Ressourcenanalyse und -management (2007/08)

Faculty	Study Program (Degree)
Law	
Bachelor and equivalent	Staatsexamen Rechtswissenschaften 2-Fächer-BA Rechtswissenschaften
Magister	Magister, Rechtsintegration in Europa Magister, Rechtswissenschaften
Mathematics (including Informatics)	
Bachelor and equivalent	BSc Mathematik 2-Fächer-BA Mathematik (Lehramt) BSc Angewandte Informatik 2-Fächer-BA Informatik (Lehramt)
Master / PhD	MSc Mathematik MSc Wirtschaftsmathematik (WS 2007/08) MSc Angewandte Informatik Angewandte Statistik und Empirische Methoden (Promotionsstudiengang) *planned (until 2009/10)* Master of Education (Beteiligung Mathematik und Informatik)

6.2 Most important publications

Steffan-Dewenter I, Kessler M, Barkmann J, Bos MM, Buchori D, Erasmi S, Faust H, Gerold G, Glenk K, Gradstein SR, Guhardja E, Harteveld M, Hertel D, Höhn P, Kappas M, Köhler S, Leuschner C, Maertens M, Marggraf R, Migge-Kleian S, Mogea J, Pitopang R, Schaefer M, Schwarze S, Sporn SG, Steingrebe A, Tjitrosoedirdjo S, Tjitrosoemito S, Twele A, Weber R, Woltmann L, Zeller M, Tscharntke T (2007) Tradeoffs between income, biodiversity, and ecosystem functioning during tropical rainforest conversion and agroforestry intensification. **Proceedings of the National Academy of Sciences (USA)** 104: 4973-4978.

Bogeat-Triboulot M, Brosché M, Renaut J, Jouve L, Le Thiec D, Fayyaz P, Vinocur B, Witters E, Laukens K, Teichmann T, Altman A, Hausman JF, Polle A, Kangasjärvi J, Dreyer E (2007) Gradual soil water depletion results in reversible changes of gene expression, protein profiles, ecophysiology and growth performance in *Populus euphratica*, a poplar growing in arid regions. **Plant Physiology** 143: 879-892.

Corre MD, Brumme R, Veldkamp E, Beese FO (2007) Changes in nitrogen cycling and retention processes in soils under spruce forests along a nitrogen enrichment gradient in Germany. **Global Change Biology** in press.

Tylianakis JM, Tscharntke T, Lewis OT (2007) Habitat modification alters the structure of tropical host-parasitoid food webs. **Nature** 445: 202-205.

Kleijn D, Baquero RA, Clough C, Díaz M, De Esteban J, Fernández F, Gabriel D, Herzog F, Holzschuh A, Jöhl R, Knop E, Kruess A, Marshall EJP, Steffan-Dewenter I, Tscharntke T, Verhulst J, West TM, Yela JL (2006) Mixed biodiversity benefits of agri-environment schemes in five European countries. **Ecology Letters** 9: 243-254.

Krott M, Hasanagas ND (2006) Measuring bridges between sectors: Causative evaluation of cross-sectorality. **Forest Policy and Economics** 8: 555-563.

Liu Y, Srivilai P, Loos S, Aebi M, Kües U (2006) An essential gene for fruiting body initiation in the basidiomycete *Coprinopsis cinerea* is homologous to bacterial cyclopropane fatty acid synthase genes. **Genetics** 172: 873-884.

Luo ZB, Calfapietra C, Liberloo M, Scarascia-Mugnozza G, Polle A (2006) Carbon partitioning to mobile and structural fractions in poplar wood under elevated CO_2 (EUROFACE) and N-fertilization. **Global Change Biology** 12: 272-283.

Luo ZW, Zhang Z, Pandey M, Gailing O, Hattemer HH, Finkeldey R (2006) Modeling population genetic data in autotetraploid species. **Genetics** 172: 639-646.

Stein AJ, Sachdev HPS, Qaim M (2006) Potential impact and cost-effectiveness of Golden Rice. **Nature Biotechnology** 24: 1200-1201.

Zhao J, Becker HC, Zhang D, Zhang Y, Ecke W (2006) Conditional QTL mapping of oil content in rapeseed with respect to protein content and traits related to plant development and grain yield. **Theoretic and Applied Genetics** 113: 33-38.

Brosché M, Vinocur B, Alatalo ER, Lamminmäki A, Teichmann T, Ottow EA, Djilianov D, Afif D, Triboulot-Bogeat MB, Altman A, Polle A, Dreyer E, Rudd S, Paulin L, Auvinen P, Kangasjärvi J (2005) Gene expression and metabolite profiling of *Populus euphratica* growing in the Negev desert. **Genome Biology** 6: R101.

Ottow EA, Brinker M, Teichmann T, Fritz E, Kaiser W, Brosché M, Kangasjärvi J, Jiang X, Polle A (2005) *Populus euphratica* displays apoplastic sodium accumulation, osmotic adjustment by decreases in calcium and soluble carbohydrates, and develops leaf succulence under salt stress. **Plant Physiology** 139: 1762-1772.

Blumenberg M, Seifert R, Reitner J, Pape T, Michaelis W (2004) Membrane lipid patterns typify distinct anaerobic methanotrophic consortia. **Proceedings of the National Academy of Sciences (USA)** 101: 11111-11116.

Schlather M, Ribeiro P, Diggle P (2004) Detecting dependence between marks and locations of marked point processes. **Journal of the Royal Statistical Society**, Series B (Statistical Methodology) 66: 79-83.

Stoll P-T (2004) The FAO "Seed Treaty" – New international rules for the conservation and sustainable use of plant genetic resources for food and agriculture. **Journal of International Biotechnology Law** 1: 239-243.

Gerowitt B, Isselstein J, Marggraf R (2003) Rewards for ecological goods – requirements and perspectives for agricultural land use. **Agriculture, Ecosystems & Environment** 98: 541-547.

Jakupi A, Steinsiek P, Herrmann B (2003) Early maps as stepping stones for the reconstruction of historic ecological conditions and biota. **Naturwissenschaften** 90: 360–365.

Qaim M, Zilberman D (2003) Yield effects of genetically modified crops in developing countries. **Science** 299: 900-902.

Klasen S (2002) Low schooling for girls, slower growth for all? **World Bank Economic Review** 16: 345-373.

Arp G, Reimer A, Reitner J (2001) Photosynthesis-induced biofilm calcification and calcium concentrations in Phanerozoic Ocean. **Science** 292: 1701-1704.

Rojas L, Godoy C, Hanson P, Kleinn C, Hilje L (2001) Hopper (Homoptera: Auchenorrhyncha) diversity in shaded coffee systems of Tueeialba, Costa Rica. **Agroforestry Systems** 53:171-177.

Leuschner Ch (2000) Are high elevations in tropical mountains arid environments for plants? **Ecology** 81: 1425-1436.

Schütz S, Weißbecker B, Hummel HE, Apel K-H, Schmitz H, Bleckmann H (1999) Insect antennae as a smoke detector. **Nature** 398: 298-299.

Thies C, Tscharntke T (1999) Landscape structure and biological control in agroecosystems. **Science** 285: 893-895.

6.3 Additional pieces of evidence of qualification

Name	Piece of evidence
1. Prizes and awards	
Finkeldey, Reiner Prof. Dr.	1990: Klaus-Stern-Award in Forest Genetics
Kessler, Michael, PD	2001: Heisenberg Fellowship at the University of Göttingen
Klasen, Stephan Prof. Dr.	2006: Green Award World Bank
Kües, Ursula, Prof. Dr.	1993: SERC Merit Award (Science and Engineering Research Council, UK) 1993: Samuel and Violette-Glasstone Fellowship at the University of Oxford
Reitner, Joachim Prof. Dr.	1996: Gottfried Wilhelm Leibniz Award of the DFG
Schütz, Stefan Prof. Dr.	1998: Prize of the International Society of Chemical Sensors 1998: Prize of the Electrochemical Society 2004: Prize of the Analytical Chemistry Division of the German Chemical Society
Sloboda, Branislaw Prof. Dr.	1994: JSPS Award
Veldkamp, Edzo Prof. Dr.	1997: 'Akademie Onderzoeker' award of the Royal Dutch Academy of Sciences
2. Patents	
Herrmann, Bernd Prof. Dr.	2000: One patent on a technique for amplification of sequences of nucleic acids
Polle, Andrea Prof. Dr.	2004: One patent on the role in lignification and growth for plant phenylcouran benzylether reductase
Militz, Holger Prof. Dr.	1999-2006: Five patents on wood modification
Schütz, Stefan Prof. Dr.	2000-2006: Five patents on the detection of organic trace compounds in the atmosphere by biosensors 2005: One patent on behaviour-modifying substances for the control of pest insects on *Aesculus* and *Acer* species
3. Membership in scientific academies and high-level commissions	
Beese, Friedrich, Prof. Dr.	Member of the German federal advisory board on Global Change (WBGU) for 8 years Jury member "German Environmental Prize" for 4 years
Herrmann, Bernd Prof. Dr.	Member of the German Academy of Sciences LEOPOLDINA
Klasen, Stephan Prof. Dr.	Member of the Scientific Advisory Council, German Ministry for Economic Cooperation and Development (by appointment from the Minister)

Marggraf, Rainer Prof. Dr.	Member of the Scientific Advisory Council on On-farm-management of Plant Genetic Resources (BMVEL; since 2003) Member of the National Expert Group for the Convention on Biological Diversity (BMU; since 2004) Member of the Expert Group for Soil Protection (UBA; since 2006)
Polle, Andrea Prof. Dr.	Member of the Academy of Sciences, Göttingen
Reitner, Joachim Prof. Dr.	Member of the Academy of Sciences, Göttingen
Stoll, Peter-Tobias Prof. Dr.	Chair of the Advisory Board on Biodiversity, Federal Ministry for Food, Agriculture and Consumer Protection (BMVEL)
Tscharntke, Teja Prof. Dr.	Member of the Governmental Scientific Board for Biodiversity and Genetic Resources (BMVEL)
Vidal, Stefan Prof. Dr.	Member of the German Commission for Biological Safety
4. Editors of high-level scientific journals	
Becker, Heiko Prof. Dr.	Editor-in-Chief of *Theoretical and Applied Genetics*
Klasen, Stephan Prof. Dr.	Managing Editor of *Review of Income and Wealth*
Krott, Max Prof. Dr.	Editor-in-Chief of the journal *Forest Policy and Economics*
Kües, Ursula Prof. Dr.	Next international Editor of *Applied Microbiology and Biotechnology* for Europe, Africa, Australia, New Zealand, The Near East, and India
Reitner, Joachim Prof. Dr.	Editor-in-Chief of *Lecture Notes in Earth Sciences*
Tscharntke, Teja Prof. Dr.	Editor-in-Chief of *Basic and Applied Ecology*

6.4 Third-party funding

No.	Funding Body	Type of Funding	Title	Coordinator	Start	Finish	Amount (annual average in thousand €)
1	DFG	SFB 552	Stability of Rainforest Margins in Indonesia (STORMA)	Tscharntke	2000	2009	1.483
2	EFRE, MWK, Industry	Research Network	Förderung der Nachhaltigen Holznutzung	Kües/Polle	2002	2005	1.033
3	DFG	Research Unit FG 571	Geobiologie von Organo- und Biofilmen	Reitner	2004	2008	600
4	DFG	Research Training Group	Interdisciplinary environmental history	Herrmann	2004	2008	340
5	BMBF	Research Network	Bewertung biologischer Vielfalt von Landnutzungssystemen in einer mega diversen Region Ecudors	Veldkamp / Tscharnke	2003	2005	329
6*	DFG	Research Training Group	The Role of Biodiversity for Element Cycles and Biotic Interactions in Temperate Deciduous Forests	Leuschner	2005	2009	311
7	BMBF	Research Network	Decision Support System Forest and Climate Change	Beese	2007	2010	254
8*	BMBF	Research Unit	R&D of archaeometric techniques within cultural history	Herrmann	2005	2007	150
9	Robert Bosch Stiftung	Junior Research Group	Impact of elevated Nitrogen input on the biogeochemistry of tropical forest	Corre / Veldkamp	2005	2008	148
10	DBU	Research Network	Zur naturverträglichen Produktion von Energieholz in der Landwirtschaft	Beese	2006	2008	133
11	EU	Network of Excellence	Evolution of trees as drivers of terrestrial biodiversity	Overall: A. Kremer, INRA Göttingen: R. Finkeldey	2006	2010	120
12*	MWK	Research Unit	ELAN, and Multimedia Infrastructure	Sloboda	2006	2006	120
13	DFG/BMZ	DFG/BMZ	Genetic variation of Shorea in Indonesia	Finkeldey	2003	2006	120
14*	DAAD	International PhD Programme	International Programme for Agricultural Sciences in Göttingen (IPAG)	Lücke	2001	2006	80
15*	DAAD	International PhD Programme	Wood Biology and Wood Technology	Militz	2001	2006	80
	Individual grants (total annual average since 2003 for all principal investigators involved)						**5.301**

* Measures aimed at establishing structured doctoral training

6.5 Participating institutions and cooperation partners

Institutes and institutions of the host university	**Location**
Faculties	
Faculty of Agricultural Sciences	Göttingen
Faculty of Biology	Göttingen
Faculty of Economic Sciences	Göttingen
Faculty of Forestry and Forest Ecology	Göttingen
Faculty of Geosciences and Geography	Göttingen
Faculty of Law	Göttingen
Faculty of Mathematics (including Informatics)	Göttingen
Research Centres	
Centre for Biodiversity Research and Ecology (GCBE)	Göttingen
Centre for Statistics (ZfS)	Göttingen
Centre for Tropical and Sub¬tropical Agriculture and Forestry (CeTSAF)	Göttingen
Forest Ecosystems Research Centre (FERC)	Göttingen
Interdisciplinary Centre for Informatics (ZfI)	Göttingen
Network on Sustainable Wood Utilisation (NHN)	Göttingen
Research Centre for Agriculture and the Environ¬ment (ZLU)	Göttingen
If applicable: Associated cooperation partners (university and non-university institutions)	**Location**
Centre for International Forestry Research (CIFOR)	Bogor, Indonesia
Degussa GmbH	Frankfurt
Environmental Studies Program of the University of Kansas	Lawrence KS, USA
FAO Food and Agriculture Organization of the United Nations	Rome
Federal Biological Research Centre for Agriculture and Forestry (BBA)	Braunschweig
Federal Research Centre for Forestry and Forest Products (BFH)	Hamburg
Fraunhofer-Institute for Wood Research – Wilhelm-Klauditz-Institut (FhG-WKI)	Braunschweig
IAI Inter-American Institute for Global Change Research	Sao José de Campos, Brazil
ICARDA International Centre for Agricultural Research in Dry Areas	Aleppo, Syria
IFPRI International Food Policy Research Institute	Washington DC
Leibniz-Centre for Agricultural Landscape Research (ZALF)	Müncheberg
North-West German Forest Experiment Station (NW-FVA)	Göttingen
Pfleiderer GMBH & Co. KG	Arnsberg
Symrise GmbH & Co. KG	Holzminden
Universidad de Chile, Facultad de Ciencias Forestales	Santiago de Chile

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23 March 2007

Prof. Dr. Stefan Schütz
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Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
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37077 Göttingen
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sschuetz@gwdg.de

Dear Prof. Schütz,

This letter is to confirm that CIFOR is interested in principle in collaborating with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at the Georg-August-Universität Göttingen.

CIFOR - as the leading international forest research institute with presence in Asia, Africa and Latin America – has expertise and may contribute for instance in one or more of the following fields:

- Sustainable forest management and rehabilitation of degraded lands,
- Forest conservation and management of biodiversity at landscape level,
- Forest products development including non-wood forest products,
- Forests, rural livelihoods and poverty alleviation,
- Socio-economic analysis of forest utilization and conservation,
- Forest policies, institutions, organisations, and forest products trade,
- Forests and climate change (adaptation and mitigation).

We understand that here are no financial or other commitments form our part at this stage, and that the detailed modalities of collaboration will be negotiated separately in the future. We are very interested in and looking forward to developing jointly PhD research projects, where GGTE PhD students would be integrated into our ongoing research projects.

Yours sincerely,

Markku Kanninen
Director
Environmental Services and Sustainable Use of Forests Program

degussa.

creating essentials

Aerosil & Silanes

Degussa GmbH
Weißfrauenstraße 9
60287 Frankfurt am Main

T +49-69-218-01
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www.degussa.com

14. März 2007

Degussa GmbH • 60287 Frankfurt am Main

Institut für Forstzoologie und Waldschutz
z. Hd. Herrn Prof. Dr. Schütz
Büsgenweg 3
37077 Göttingen

Eing.: 19. März 2007
Direktor

Interessensbekundung GGTE

Sehr geehrter Her Professor Schütz,

die Degussa GmbH begrüßt und unterstützt den Antrag der Georg-August-Universität Göttingen für die Etablierung einer Graduiertenschule GGTE (Georg-August-University Graduate School of Terrestrial Ecosystems) im Rahmen der Exzellenzinitiative, in der Doktorierende durch ihre Forschungsprojekte und begleitende Kurse zur Vertiefung von Fachwissen als auch zur Vermittlung von allgemeinen beruflich wichtigen Kenntnissen (Softskills) ausgebildet werden sollen.

Die Degussa GmbH hat in der Vergangenheit öfters Praktikanten aus Göttingen aus dem Studienbereich Forstwissenschaften und Waldökologie aufgenommen und in gemeinsamen Forschungsprojekten mit Göttinger Wissenschaftlern Doktoranden vor Ort betreut. Degussa arbeitet bereits schwerpunktmäßig im Bereich F&E an der Entwicklung von hochwertigen Verbindungen für die Holzbeleimung und die Verbesserung der Eigenschaften von Verbundwerkstoffen durch neue silanbasierende Polymer-Verbindungen. Erfolgreiche Absolventen der Fakultät für Forstwissenschaften und Waldökologie im Schwerpunkt Holzbiologie und Holztechnologie sind damit aufgrund ihrer angewandten Studienausrichtung und den damit verbundenen Kenntnissen und Erfahrungen geeignet, für die Entwicklung vermarktbarer Systeme auf den genannten Gebieten bei Degussa als Mitarbeiter tätig zu werden.

Degussa wird sich bemühen, die Graduiertenschule GGTE nach vorhandenen Möglichkeiten zu unterstützen, z. B. durch Anbieten von Praktikantenplätzen, durch Betreuung von Doktoranden gemeinsamen Forschungsprojekten, oder auch durch Betriebsbesichtigungen von in Rahmen von Kursen im Graduiertenprogramm.

Mit freundlichen Grüßen

Degussa AG

i.V. Dr. Peter K. Jenkner

Business Maanger New Development Silanes
AS-SL-FU

Kontakt:
Dr. Peter K. Jenkner
Aerosil & Silanes

AS-SL-FU/PKJ

T +49-69-218-3919
F +49-69-218-63919

peter.jenkner
@degussa.com

Sitz: Düsseldorf, Amtsgericht Düsseldorf, HRB 55436 • Aufsichtsratsvorsitzender: Dr. Werner Müller • Geschäftsführer: Dr. Klaus Engel (Vorsitzender der Geschäftsführung), Dr. Alfred Oberholz (stellvertretender Vorsitzender), Ralf Blauth, Dr. Manfred Spindler, Heinz-Joachim Wagner

J:\daten\SL NBD\Projekte\Holzmodifizierung\Werkstoffmodifizierung Kharazipour\Interessensbekundung GGWE.doc

The University of Kansas

Environmental Studies Program

Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany

25 March 2007

Dear Prof. Schütz,

I confirm that the Environmental Studies Program (EVRN) at the University of Kansas is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen.

The EVRN may contribute expertise from researchers and scientists in particular in one or more of the following fields:

- ecosystem analysis
- tropical agriculture
- human modification of soils
- geoarchaeology
- remote sensing applied to landscape interpretation
- water resources law
- ethnobotany
- and other specific topics related to geography and environmental history

My colleagues in the Program and I are looking forward also to the envisaged joint development of PhD research projects and to GGTE PhD students to integrate into our ongoing projects.

Sincerely,

Prof. Dr. William I. Woods
Director

College of Liberal Arts and Sciences • Snow Hall • 1460 Jayhawk Blvd., Room 415
Lawrence, KS 66045-7523 • (785) 864-8902 • Fax: (785) 864-8955

联合国粮食及农业组织
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE
ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION
منظمة الأغذية والزراعة للأمم المتحدة

Viale delle Terme di Caracalla, 00153Rome, Italy
Cables: FOODAGRI ROME
Telex: 625852 FAO I 610181 FAO I
Facsimile: +39 0657053152
Telephone: +39 0657051

Our Ref.:

Your Ref.:

28 MAR. 2007

Dear Prof. Schütz,

FAO collaboration with GGTE

Thank you very much for the invitation to act as collaborator with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE).

Further to the excellent cooperation already existing between the Forestry Department of the Food and Agriculture Organization of the UN (FAO) and scientists and students from Georg-August-Universität Göttingen, I confirm that we are also interested in collaborating with GGTE.

Given the mandate of FAO, we could collaborate in particular in the following fields:

- Internships for PhD students in ongoing projects;
- Joint development of PhD research projects in the framework of our ongoing projects and activities.

Occasionally, we could also share our expertise through seminars and lectures on specific topics.

Details of our collaboration will be agreed upon on a case-by-case basis.

A graduate school that combines research on our environment from an *ecosystem* and simultaneously from a *resource* point of view appears very important and timely. I look forward to further enhancing this collaboration on the basis of our mutual interest.

For any further questions or follow-up on this question, please contact Mr. Wulf Killmann, Director, Forest Products and Industry Division.

Yours sincerely,

Jan Heino
Assistant Director-General
Forestry Department

Prof. Dr. Stefan Schütz
Coordinator,
Göttingen Graduate School for Terrestrial Ecosystems
Institute of Forest Protection and Forest Zoology
Büsgenweg 3
37077 Göttingen
Germany

Institut für Pflanzenschutz im Forst
Institute for Plant Protection in Forests

Biologische Bundesanstalt
für Land- und Forstwirtschaft

Federal Biological Research Centre
for Agriculture and Forestry

BBA, Messeweg 11/12, D-38104 Braunschweig, Germany

www.bba.de

Fon 05 31/2 99-46 00
Fax 05 31/2 99 30 11
E-Mail a.wulf@bba.de

Name Prof. Dr. A. Wulf

Herrn Professor
Dr. Stefan Schütz
Institut für Forstzoologie und Waldschutz
Büsgenweg 3
37077 Göttingen

Ihr AZ
Unser AZ F//wu/kra

Datum 16.03.2007

Statement by the Institute for Plant Protection in Forest, Department of the Federal Biological Research Centre for Agriculture and Forestry, Braunschweig

The Institute for Plant Protection in Forest (BBA-F) has for decades been working closely together with the Faculty of Forestry and Forest Ecology at Göttingen University. Since its foundation in 1949 it is involved in teaching and research there. BBA-F is in narrow collaboration with the Institute for Forest Zoology and the Institute for Forest Botany of Göttingen University and operates numerous long-term experimental projects which will be further held open for joint activities in teaching and research.

BBA-F strongly supports the application to establish the Graduate School GGTE in the framework of the Excellence Initiative and will engage to its best ability in the Graduate School's activities, for instance through joint supervisions of PhD theses.

Prof. Dr. A. Wulf

E:\Institut\Statement.doc

Bundesforschungsanstalt für Forst- und Holzwirtschaft

Bundesforschungsanstalt für Forst- und Holzwirtschaft, Postfach 800209, D-21002 Hamburg
Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany

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Durchwahl: (040) 73962-300
Fax: (040) 73962-299
E-Mail: bfh-verw@holz.uni-hamburg.de
Home: http://www.bfafh.de
Bahnstation: Hamburg-Bergedorf

Hamburg, den 28.03.2007

Zeichen:

Expression of collaboration interest

Dear Prof. Schütz,

we confirm that the Federal Research Centre for Forestry and Forest Products is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen. This will broaden our existing collaboration in the fields of energy wood plantations and adaptation of forestry to climate change.

The Forest Research Centre may contribute expertise from researchers and scientists in particular in one or more of the following fields:

- Forest ecology;
- Soil science;
- Adaptation of forests and forest management to climate change;
- Forest conservation;
- Forest monitoring and inventory;
- Forest products development including non-wood forest products;
- Socio-economic analysis of forest utilization;

We are looking forward also to the envisaged joint development of PhD research projects and to GGTE PhD students to integrate into our ongoing projects.

Sincerely,

Prof. Dr. C. Thoroe
Head

Title page of the Cooperation Treaty between University of Göttingen, Advanced Technical College Göttingen, Fraunhofer Institute for Wood Research WKI and the North-West German Forest Research Centre NW-FVA

Niedersächsisches Kompetenznetz für Nachhaltige Holznutzung (NHN)

Kooperationsvereinbarung

zwischen der

Georg-August-Universität Göttingen,
vertreten durch den Präsidenten
Wilhelmsplatz 1, 37073 Göttingen
- Universität Göttingen-,

der

HAWK Fachhochschule Hildesheim/Holzminden/Göttingen,
vertreten durch den Präsidenten,
Hohnsen 4
31134 Hildesheim
- FH Hildesheim-,

dem

Fraunhofer-Institut für Holzforschung Wilhelm-Klauditz-Institut (WKI)
Braunschweig,
vertreten durch den Geschäftsführer
Bienroder Weg 54 E
38108 Braunschweig
-WKI-,

und der

Niedersächsischen Forstlichen Versuchsanstalt
vertreten durch den Leiter
Grätzelstraße 2
37079 Göttingen
-NFV-

Signatures page of the Cooperation Treaty between University of Göttingen, Advanced Technical College Göttingen, Fraunhofer Institute for Wood Research WKI and the North-West German Forest Research Centre NW-FVA

Ort, Datum

Für die Georg-August-Universität Göttingen

.....

(Prof. Dr. Gerd Lüer)

Ort, Datum Hildesheim, 20. 7. 2004

Für die HAWK Fachhochschule Hildesheim/Holzminden/Göttingen

.....

(Frau Prof. Dr. Cornelia Behrens)

Ort, Datum Göttingen, den 9. 7. 2004

Für die Niedersächsische Forstliche Versuchsanstalt

.....

(Ltd.FD Prof. Dr. Hermann Spellmann)

Ort,Datum Göttingen, den 6. 9. 2004

Für das Fraunhofer Institut für Holzforschung, Wilhelm-Klauditz Institut (WKI)

.....

(Prof. Dr. Rainer Marutzky)

Inter-American Institute for Global Change Research
Directorate

São José dos Campos, March 2, 2007

Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany
sschuetz@gwdg.de

Dear Prof. Schütz,

I confirm the IAI's interest in cooperation with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at the Georg-August-Universität Göttingen.

The IAI (Inter-American Institute for Global Change Research) is an intergovernmental institution of 19 countries in the Americas dedicated to international cooperation, and the open exchange of scientific information to increase the understanding of global change phenomena and their socio-economic implications. With the recognition for the need to better understand the natural and social processes which drive large scale environmental change, the goal of the IAI is to augment the scientific capacity of the region and to provide information in a useful and timely manner to policy makers. Its primary objective is to encourage research beyond the scope of national programs by advancing comparative and focused studies based on scientific issues important to the region as a whole.

Under this mission, the IAI supports research programs and collaborative research networks involving some 320 institutions and 800 scientists in the region. Capacity building is an important part of the IAI's mission, and it has already collaborated with the University of Göttingen in multidisciplinary summer schools (jointly funded by the IAI and DAAD), and individual M. Sc. and Ph. D. programs.

We are looking forward to the development of Ph. D. research programs and studies linking the IAI's cooperating institutions to GGTE.

Sincerely,

Holm Tiessen
Director

c/o INPE
Av. dos Astronautas, 1758 São José dos Campos, SP 12227-010 BRASIL
Tel. +55.12.3945-6855/6856 Fax +55.12.3941-4410
E-mail: iaibr@dir.iai.int

ايكاردا
المركز الدولي للبحوث الزراعية في المناطق الجافة
ICARDA
International Center for Agricultural Research in the Dry Areas

21 March 2007

Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany
sschuetz@gwdg.de

Dear Prof. Schütz,

We have with interest seen the announcement on the Graduate Studies Programme of the Georg-August-Universitat Gottingen, University of Gottingen. ICARDA is very much interested in collaborating with this Programme for our International Graduate students, who conduct their thesis research at ICARDA. Through this letter, we would like to confirm our interest and willingness to collaborate actively with the Gottingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen.

ICARDA may contribute expertise from researchers and scientists in the following fields:

- Agronomy in dry area
- Developing farming systems in dry areas
- Innovation of agricultural/add-value products

In addition, we look forward to the envisaged joint development of PhD research projects for our Graduate students and to GGTE PhD students to integrate their PhD theses research into our ongoing projects.

With kind regards,

Sincerely yours,

Mahmoud Solh
Director General

Fax: Director General's Office (963-21) 2225105 Tel: Headquarters at Tel Hadya (963-21) 2213433; 2213477; 2225112; 2225012 P.O. Box 5466, Aleppo, Syria
Headquarters at Tel Hadya (963-21) 2213490 City Office, Aleppo (963-21) 5743104; 5746807; 5748964 E-mail: ICARDA@cgiar.org
City Office, Aleppo (963-21) 5744622 Street Address: Aleppo-Damascus Highway, Tel Hadya, Aleppo, Syrian Arab Republic Web site: http://www.icarda.org

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty

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Tel. +1.202.862.6496
Fax. +1.202.467.4439
Email: j.vonbraun@cgiar.org
www.ifpri.org

Dr. Joachim von Braun
Director General

March 12, 2007

Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen, Germany

Dear Prof. Schütz,

We confirm that IFPRI is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen, Germany.

We in fact already have strong collaborations and contacts with researchers at the University of Göttingen, including also on projects funded by the German Science Foundation, and would be more than happy to deepen this interaction in the context of GGTE.

We would be particularly interested in collaborating in the research areas of ecosystem services and global change research. We envisage that such collaboration could include our participation in teaching and/or research activities of GGTE, the exchange of Ph.D. and post-doctoral researchers, and the formulation of joint research projects.

Sincerely yours,

J. v. Braun

Prof. Joachim von Braun
Director General

Leibniz - Zentrum für
Agrarlandschaftsforschung
(ZALF) e.V.

ZALF, Eberswalder Straße 84, D-15374 Müncheberg

- Der Direktor -

Prof. Dr. Hubert Wiggering

Telefon: 033432/82-200
Fax:: 033432/82-223
eMail: wiggering@zalf.de

Eberswalder Straße 84
D-15374 Müncheberg
www.zalf.de

To
Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany

Ihr Zeichen	Ihr Schreiben vom	Unser Zeichen	Datum
			27.03.07

Dear Prof. Schütz,

we confirm that ZALF is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen.

ZALF may contribute expertise from researchers and scientists in particular in one or more of the following fields:

- Agricultural production including non-commodity outputs;
- Socio-economic analysis of landscape utilization;
- Adaptation of land use systems to climate change.

We are looking forward also to the envisaged joint development of PhD research projects and to GGTE PhD students to integrate into our ongoing projects.

Sincerely,

Prof. Dr. Hubert Wiggering
Director

Bankverbindung: Sparkasse Märkisch-Oderland (BLZ 170 540 40) Konto-Nr.: 1 800 006 841

Nordwestdeutsche Forstliche Versuchsanstalt
Grätzelstrasse 2, 37079 Göttingen

HESSEN

Nordwestdeutsche Forstliche Versuchsanstalt

To
Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany

Bearbeitet von Prof. Dr. Hermann Spellmann

E-Mail
hermann.spellmann@nw-fva.de

Ihr Zeichen, Ihre Nachricht vom	Mein Zeichen (Bei Antwort angeben)	Durchwahl (0551) 69401-	Göttingen, den
			23.03.2007

Dear Prof. Schütz,

we confirm that the Northwest German Forest Research Station is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen.

The Northwest German Forest Research Station may contribute expertise from researchers and scientists in particular in one or more of the following fields:

- Forest Growth and Forest Growth Modelling;
- Silviculture;
- Socio-economic analysis of forest utilization;
- Forest conservation;
- Forest Protection;
- Forest Genetic Resources;
- Enviromental Control;
- Modelling Nutrient Cycles
- Adaptation of forests to climate change.

We are looking forward also to the envisaged joint development of PhD research projects and to GGTE PhD students to integrate into our ongoing projects.

Sincerely,

H. Spellmann

(Ltd. FD Prof. Dr. Hermann Spellmann)

NW-FVA
Nordwestdeutsche
Forstliche Versuchsanstalt

Grätzelstrasse 2
37079 Göttingen

Telefon
0551 – 69 401 - 0

Telefax
0551 – 69 401 - 160

E-Mail
zentrale@nw-fva.de

Internet
www.nw-fva.de

Bankverbindung
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BIC: NOLADE2H
IBAN: DE 80 250 500 00 0 106 023 534

PFLEIDERER
AKTIENGESELLSCHAFT

PFLEIDERER Holzwerkstoffe GmbH & Co. KG • Westring 19 - 21 • D-59759 Arnsberg

Institut für Forstzoologie und Waldschutz
z. Hd. Herrn Prof. Dr. Schütz
Büsgenweg 3
37077 Göttingen

Unsere Zeichen our ref.	Ihr Gesprächspartner your correspondent	Telefon-Durchwahl telephone	Fax-Durchwahl fax	Datum date
	Herr Dr. Nonninger	(0 29 32) 302 - 400	(0 29 32) - 302 - 399	22.03.2007

Sehr geehrter Herr Prof. Dr. Schütz,

Die Firma Pfleiderer Holzwerkstoffe GmbH & Co. KG hat mit großem Interesse die Beantragung einer Graduiertenschule GGTE (Georg-August-University Graduate School of Terrestrial Ecosystems) durch die Georg-August-Universität Göttingen im Rahmen der Exzellenzinitiative verfolgt. Zur Etablierung dieser Graduiertenschule, die vornehmlich Promotionsstudenten/-innen die Chance bieten soll durch ihre Forschungsprojekte sowie durch geeignete Kurse zur Vertiefung von Fachwissen als auch durch Vermittlung von allgemeinen beruflich wichtigen Kenntnissen ein fundierte Ausbildung zu garantieren, möchten wir mit diesem Schreiben unsere Unterstützung bekunden.

Die Pfleiderer Holzwerkstoffe GmbH & CO. KG hat bereits in den vergangenen Jahren zahlreiche Praktikanten der Georg-August-Universität Göttingen aus dem Studienbereich Forstwissenschaften und Waldökologie aufgenommen, um den Studenten bereits während ihrer theoretischen Ausbildung einen praktischen Bezug zur Industrie zu vermitteln.

Darüber hinaus besteht zwischen der Pfleiderer Holzwerkstoffe GmbH & Co. KG und der Universität Göttingen seit Jahren eine enge Kooperation. Auf der Basis vieler nationaler Forschungsanträge, die sich vornehmlich mit Forschungs- und Entwicklungsarbeiten auf dem Gebiet der Holzwerkstoffoptimierung und der Entwicklung neuartiger, natürlicher Bindemittel beschäftigten, entwickelte sich im Laufe der letzten Jahre eine sehr ausgewogene Zusammenarbeit zwischen der Universität Göttingen und dem Pfleidererkonzern. Dies beruht auf den gemeinsamen Interessen, die sich zwischen der Industrie und einer Hochschule, die schwerpunktmäßig anwendungsbezogene Forschung betreibt.

PFLEIDERER
AKTIENGESELLSCHAFT

Für die Pfleiderer Holzwerkstoffe GmbH & Co. KG ist der Forschungs- und Entwicklungsbereich ein sehr wichtiger Sektor um auch in Zukunft die Wettbewerbsfähigkeit des Konzerns sicher zu stellen. Aus dieser Symbiose mit der Georg-August-Universität Göttingen können wichtige Erkenntnisse und Entwicklungen für die Holzwerkstoffindustrie gewonnen werden und die Absolventen dieses Fachbereiches stellen aufgrund ihrer industriebezogenen Ausbildung ein zukünftiges Mitarbeiterpotential in unserem Unternehmen dar.

Die Pfleiderer Holzwerkstoffe GmbH & Co. KG möchte auch in Zukunft die Graduiertenschule GGTE hinsichtlich der uns zur Verfügung stehenden Möglichkeiten unterstützen. Mögliche Unterstützung können wir durch das zur Verfügung stellen von Praktikantenplätzen, die Betreuung von Doktoranden in gemeinsamen Forschungsprojekten, oder auch durch Betriebsbesichtigungen im Rahmen von Kursen im Graduiertenprogramm leisten.

Mit freundlichen Grüßen

ppa. Dr. Kurt Nonninger

symrise
always inspiring more...

Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3

37077 Göttingen

20.03.2007

Dear Prof. Schütz,

We confirm that Symrise AG in Holzminden is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen.

The Symrise AG may contribute expertise from researchers and scientists in the following fields:

Flavours as Ecosystem Products
Biotechnology of Flavours
Food grade insect repellent semiochemicals

In addition we are looking forward to the envisaged joint development of research projects and to a fruitful joint development work.

Best regards,
Symrise GmbH & Co. KG

i.V. Dr. Gerhard Krammer
Senior Vice President
Global Flavor Innovations

UNIVERSIDAD DE CHILE
FACULTAD DE CIENCIAS FORESTALES
CASILLA 9206 FONO (56) 2 978 5883 / 978 5885 FAX (56) 2 541 4952

March 8, 2007

To
Prof. Dr. Stefan Schütz
Coordinator GGTE
Faculty of Forest Sciences and Forest Ecology
Georg-August-Universität Göttingen
Büsgenweg 3
37077 Göttingen
Germany
sschuetz@gwdg.de

Dear Prof. Schütz,

We confirm that the Faculty of Forest Science of University of Chile is interested and willing to collaborate actively with the Göttingen Graduate School on Terrestrial Ecosystems (GGTE) at Georg-August-Universität Göttingen.

The Faculty of Forest Science may contribute expertise from researchers and scientists in particular in one or more of the following fields:

- Forest conservation;
- Forest products development including non-wood forest products;
- Socio-economic analysis of forest utilization;
- Adaptation of forests to climate change.
- Forest environmental services
- Indigenous people and forest conservation

We are looking forward also to the envisaged joint development of PhD research projects and to GGTE PhD students to integrate into our ongoing projects.

Sincerely,

CARMEN L. DE LA MAZA
Dean (S)

6.6 Five Pages Proposal Summary (Executive Summary)

6.6.1 Rationale

The proposed **Göttingen Graduate School for Terrestrial Ecosystems (GGTE)** will provide an internationally leading platform for research-based graduate training in the field of terrestrial ecosystem research and management. Excellent training capacities on thematic areas such as functioning of ecosystems and sustainable use of ecosystem products and services, are urgently needed to meet the extraordinary challenges mankind is facing as a result of rapid changes in the global environment and its economic and ecological systems. GGTE at the Georg-August University of Göttingen is best suited to face these challenges. During the last 40 years, starting with the International Biological Program (IBP), the university has gained national and international reputation for analysing structures and functions of terrestrial ecosystems under changing environmental and societal conditions. These analyses also include the assessment of the impacts of these changes on ecosystem services. Another output of ecosystem related research is the development of innovative ecosystem products. These activities established research structures and expertise, which guarantee high quality education and research in the future. The Faculties of Agriculture, Biology, Forestry, and Geo Sciences are supplemented by specific expertise of the Faculties of Law, Economics, Mathematics and Informatics. Thus, the Georg-August-University exhibits a unique constellation for high quality education and research on terrestrial ecosystems in Germany. This excellent research potential, which is further supported by five interdisciplinary research centres with long standing experience in integrated ecosystem research and research management, has been emphasized by the evaluation of the German Science Council in 2006. In terrestrial ecosystem research, the University of Göttingen is one of Germany´s most attractive places for international students and scientists as demonstrated by high numbers of DAAD and Alexander von Humboldt scholars. GGTE builds on this long-standing internationally recognized reputation.

6.6.2 Academic profile

Human impact on the natural environment has resulted in a number of severe global environmental problems, most importantly climate change, global biodiversity loss, large-scale eutrophication, acid deposition and shortage of drinking water, which threaten the life supporting capacity of the biosphere. The complexity of these challenges requires an integrated research approach that includes natural and socio-economic sciences and covers various spatial and temporal scales. GGTE will adopt a systems-oriented approach to identify and optimize strategies for sustainable use of natural resources, which can meet the demand of recent and future generations. GGTE's research is based on numerous existing activities,

including an international collaborative research centre (SFB 552), two Research Training Groups (RTG 1086 and 1024), four Research Units (FOR 496, 546, 756 and 816), two Networks of Excellence (EU) and a large number of joint projects (BMBF, BMVEL, BMU, DBU, Bosch-Foundation etc.). GGTE is embedded in the contributing faculties, supported by the integrated research centres (FERC, NHN, GCBE, CeTSAF, ZLU, ZfI, ZfS, CNC) and strongly linked with international partners (Inter-American Institute for Global Change research, ICRAF, CIFOR).

GGTE fits well into the strategic plan of the University which focuses its research activities on "Flagship Areas". **Principal Research Areas** that will be addressed are (I) ecosystem functioning, (II) ecosystem products, (III) ecosystem services and (IV) the socio-economic perspectives of Global Change.

Ecosystem functions: A better understanding of the functioning of managed and natural ecosystems is needed. In particular, hypotheses on the stability and resilience of ecosystems have to be developed and tested. Using experiments in combination with advanced modelling approaches, this analysis requires contributions by basic scientific disciplines, including microbiology, botany, zoology, ecology, genetics, geobiology, soil science, bioclimatology and ecological modelling.

Ecosystem products: Technological answers to the currently changing environmental setting and human needs are sought. In addition to the disciplines mentioned above, GGTE integrates expertise from disciplines such as agronomy, silviculture, and plant breeding which focus on the sustainable production of food and biomass, but also non-timber forest products such as biofuel. Development of innovative ecosystem products in environmentally-friendly production processes requires high-tech approaches that are sought by disciplines such as wood technology and biotechnology.

Ecosystem services: The threat to ecosystem stability urges for scientifically-based guidelines for political actions aimed at maintaining the functioning of ecosystems. This concerns, in particular, ecosystem services that are usually not converted to commodities: for instance, soil and water protection, carbon sequestration, conservation of biodiversity or pest control. Research into the economic, social and cultural aspects of land use and production technologies and monetary valuation of ecosystem services is conducted by disciplines such as developmental economics, environmental and resource economics, environmental history, cultural geography and international law.

Socio-economic perspective of Global Change: The complexity of the natural-socio-economic earth system with its manifold feedbacks and opposing human goals requires a broad interdisciplinary research strategy. GGTE tackles this challenge with respect to terrestrial ecosystems by integrating research approaches from socio-economic and natural sciences in order to analyse land use conflicts. This includes disciplines such as silviculture, crop and tree breeding, remote sensing, ecosystem modelling und eco-informatics, social

and cultural geography, developmental economics and environmental law.

The four thematic research areas are tightly connected. Links between decision-making, ecosystem services and global environmental change define important feedback loops, from coupled human-environment activities at the local and regional scale, and to and from the global scale. GGTE has realized the need for improved understanding of the effects of human actions on natural processes of the terrestrial biosphere, the necessity to evaluate the consequences of these changes and to develop adaptation strategies.

6.6.3 Graduate programmes and training strategies

The goal of the GGTE is to provide excellent educational and research programmes for outstanding national and international students. The University has established three university schools (GAUSS – Georg August University School of Science, GGG - Göttingen Graduate School of Social Sciences, GSGK - Göttingen Graduate School of Humanities and Culture Sciences), which provide the legal regulations for PhD training. Since the university schools are organized according to disciplines, GGTE will add an important asset to the university profile forming a platform for interdisciplinary training, thus, bridging different disciplines.

In terrestrial ecosystem sciences, nine PhD degree programmes thematically centred on agricultural sciences, forest sciences, biodiversity and ecology, applied informatics, and environmental history have already been installed, and will be complemented by six new programmes. Today the faculties of Agricultural and Forest Sciences alone host more than 900 MSc and PhD students, 30% of which are coming from 74 countries. New permanent PhD programmes are currently being developed in geosciences and cultural geography. To fill research and educational gaps in the thematic areas outlined above, GGTE will establish two new PhD programmes in the seminal topics: “Governance of Biological Resources“ and ”Agroforestry“.

The PhD training provided by GGTE builds on:

- Excellent research environment, documented by a large range of existing individual and collaborative research projects of the participating faculties on terrestrial ecosystems
- Efficiently structured interdisciplinary training, which builds upon well established PhD programmes. GGTE brings them together by adding specialized training modules on terrestrial ecosystem research and internships in national and international partner institutions
- New interdisciplinary PhD programmes focused on particular aspects of terrestrial ecosystem research
- Training in professional skills.

Research and training opportunities will be internationally advertised. In order to attract the

most gifted students, the PhD candidates will be selected on a competitive basis. The candidates will be evaluated by their scientific background and research interests. Selected candidates will be invited for interviews. Only the best students will be admitted to the school based on their individual performance.

Part of the GGTE funding will be used to award PhD scholarships. Another part of the GGTE funds will be allocated to complement the training programmes by supporting guest professors, guest lectures, summer schools, excursions, short term research stays in international partner institutions, and intercultural and professional training.

The structured PhD programmes last three years and comprise individual research projects and additional training modules, which must be chosen in three areas: PhD seminars and interdisciplinary courses, practical training units, and professional skills. The key elements of the PhD training are:

- supervision and mentoring of PhD students during their independent research by th **thesis committee**, interdisciplinary thesis committees as well as GGTE specific colloquia, conferences, and workshops
- **interdisciplinary courses** bring together new and current PhD students on topics related to terrestrial ecosystem research and facilitate interaction with peers and renowned invited scientist
- **advanced methods courses** that raise methodological standards by connecting existing and new PhD programmes on terrestrial ecosystem research with methodological training programmes such as those offered by the interdisciplinary Centres of Statistics and Informatics
- integration of new and current PhD students in terrestrial ecosystem research into **research, training, and practice networks** by supporting internships and research training at partner institutions, e.g. the Food and Agriculture Organization of the United Nations, Center for International Forestry Research, Inter-American Institute for Global Change Research and many others
- courses on **professional and intercultural skills,** e.g. rhetoric, didactic, intercultural communication, IT- and multimedia, conflict management, scientific leadership, fund raising, entrepreneurship etc..

These measures will **raise the standards of PhD training** in programmes associated with GGTE by imposing stricter standards for training, supervision and examination and accelerating the time from MSc to PhD. GGTE also aims at promoting integrative MSc/ PhD programmes as “fast track” for excellent students. Supervision and mentoring by a thesis committee will ensure that doctoral students will be guided and encouraged to publish their results in international journals. These measures will increase the international visibility and attract outstanding PhD students to the University of Göttingen.

6.6.4 Structure of GGTE

GGTE will consist of faculty members of its PhD programmes. GGTE faculty members and PhD students elect the GGTE board comprised of scientists and PhD students. The board is responsible for allocation of the funds raised by GGTE to scholarships, teaching and other activities, for approval of novel PhD programmes and for quality assessment of the different PhD programmes. Each doctoral programme provides an annual report that lists all enrolled students, their thesis projects, the members of their thesis committees, their publications and those students who have recently graduated. These reports are discussed by the GGTE board in order to provide specific recommendations to the individual programmes.

The GGTE board will be supported by the GGTE office headed by the GGTE coordinator. The office's function is to organize and harmonize the admission procedure and to coordinate courses for the different programmes. An important task of the office will also be to provide advice to PhD students and to keep contact with alumni. The office will also organize regular evaluations of all courses by the students, obtain feedback from alumni and report the results to the board.

GGTE will be supervised by an **international advisory board,** whose members are representatives of science and industry. GGTE reports annually to the advisory board. The performance of GGTE will be evaluated by the advisory board every three years.

In addition to achieving highest academic goals, a major aim of GGTE is the improvement of the infrastructure for living and studying in Göttingen. Together the university and the town of Göttingen have taken steps to support "dual career couples". Furthermore, a Welcome Centre for newcomers will be established by the university. In addition, GGTE will support students with young children by providing child care facilities. Female students will especially profit from these measures.

The overall goal of GGTE is to establish novel structures increasing the standards of graduate academic education. This will further enhance the existing scientific reputation and high international standing of the University of Göttingen.

6.7 Curricula vitae and selected publications

Name: **BECKER, HEIKO C.**

Date of Birth: April 4th, 1950
Position: Professor (C4)
Address: Chair of Plant Breeding
Department of Crop Sciences
Universität Göttingen, Von-Siebold-Str. 8,
D-37075 Göttingen, Germany
Phone: +49-551394381
Fax: +49-551394601
Email, web: hbecker1@gwdg.de, www.uni-Göttingen.de/de/sh/48115.html

Education and specialization:

1968-1974	Studies in Biology (Univ. Freiburg and FU Berlin)
1974	Diploma in Biology (main focus Applied Genetics)
1978	Dr. sc. Agr., Univ. Hohenheim
1987	Habilitation, Univ. Hohenheim
1988	Docent competence, Swedish Univ. of Agriculture

Academic appointments:

1978-1987	Research Assistant, Univ. Hohenheim
1987-1994	Ass. Prof., Plant Breeding Methodology, Swedish Univ. of Agriculture
since 1995	Full professorship (C4) in Plant Breeding, Univ. Göttingen

Other professional/academic positions:

1988 – 2000	Member of the Editorial Board of Euphytica
since 1995	Member of the Editorial Board of Journal of Applied Genetics
since 1998	Member of the Scientific Advisory Board of the BAZ (Federal Centre for Breeding Research on Cultivated Crops)
2000 – 2005	Editor-in-Chief of Theoretical and Applied Genetics
since 2004	Member of the Editorial Board of Genetic Resources and Crop Evolution
since 2007	Member of the Editorial Board of Plant Breeding
1992 - 2001	Chairman of the Section Oil and Protein Crops of EUCARPIA (European Association for Plant Breeding Research)
1999 - 2001	Dean of the Faculty of Agriculture

Key research expertise:

- Utilisation of genetic resources in plant breeding
- Combination of classical and biotechnological approaches in plant breeding
- Application of molecular markers in plant breeding
- Improving nitrogen efficiency to reduce external inputs in agriculture
- Improving seed quality in oilseed rape
- Using *Brassica* species for bioenergy production.

Major research funds since 2001 (selection):

- Genetic basis of nutrient efficiency in oilseed rape (DFG 2000 – 2004; 183,477 €)
- Identification of Brassica chromosomes by physical mapping of DNA sequences with fluorescence in situ hybridisation (DFG 2000-2003; 89,398 €)
- Heterosis in rapeseed, 2 projects within the priority project “Heterosis in Plants” (DFG 2003-2007; 373,816 €)

- Linkage disequilibrium analyses in rapeseed (DFG 2005 – 2007; 207,078 €)
- Tomatoes and safflower for ecological agriculture (BMVEL 2004 – 2007; 356,108 €)
- Application of biotechnology for the improvement of oilseed rape (EU INCO-DC 1997 – 2004; 168,157 €)
- NAPUS 2000, Healthy food from transgenic rapeseed (BMBF 1999-2004; 508,451 €)
- GABI-GARS Genome analysis in rapeseed (BMBF 2001-2003; 261,021 €)
- GABI-BRIDGE Allelic diversity in candidate genes for oil content in oilseed rape (BMBF 2003 – 2006; 143,750 €)
- Influence of the pollen genotype on seed quality in oilseed rape (GFP/BMVEL 2001 – 2004; 174,561 €)
- Development of rapid analysis methods for breeding of high oleic acid rapeseed (GFP/FNR 2005 – 2008; 291,886 €)
- Use of newly resynthesized genotypes for the development of high erucic rapeseed (GFP/FNR 2005 – 2007; 269,314 €)
- Production and analysis of intervarietal substitution lines in oilseed rape (DSV/KWS/NPZ/SW 2003-2007; 275,006 €)
- Model calculation for a comparison of different breeding methods in rapeseed (KWS 2002 – 2003; 69,664 €)

Other academic activities:
- Peer reviewer for funding agencies in Germany, France, Canada, and the EU
- Regular peer reviewer for various journals

Ten most important publications:
Teklewold A, Becker HC (2006) Comparison of phenotypic and molecular distances to predict heterosis and F1 performance in Ethiopian mustard (Brassica carinata Braun). Theor Appl Genet 112:752-759.
Zhao J, Becker HC, Zhang D, Zhang Y, Ecke W (2006) Conditional QTL mapping of oil content in rapeseed with respect to trotein content and traits related to plant development and grain yield. Theor Appl Genet 113:33-38.
Abel S, Möllers C, Becker HC (2005) Development of synthetic *Brassica napus* lines for the analysis of „fixed heterosis" in allopolyploid plants. Euphytica 142:119-129.
Baye T, Becker HC (2005) Exploration of *Vernonia galamensis* in Ethiopia, and variation in fatty acid composition of seed oil. Genet Resources Crop Evol 52:805-811.
Hüsken A, Baumert A, Milkowski C, Becker HC, Strack D, Möllers C (2005) Resveratrol glucoside (piceid) synthesis in seeds of transgenic oilseed rape (*Brassica napus* L.). Theor Appl Genet 111:1553-1562.
Marwede V, Schierholt A, Möllers C, Becker HC (2004) Genotype x environment interactions and heritability of tocopherol contents in canola. Crop Sci 44:728-731.
Alemayehu N, Becker HC (2002) Genotypic diversity and patterns of variation in a germplasm material of Ethiopian mustard (Brassica carinata A. Braun). Genet Resources Crop Evol 49:573-582.
Schierholt A, Rücker B, Becker HC (2001) Inheritance of high oleic acid mutations in winter oilseed rape (*Brassica napus* L,). Crop Sci 41:1444-1449.
Hill J, Becker HC, Tigerstedt PMA (1998) Quantitative and Ecological Aspects of Plant Breeding. Chapman & Hall, London.
Becker H (1993) Pflanzenzüchtung. Ulmer, Stuttgart (2nd edition will appear end of 2007).

Experience in the supervision of doctoral candidates (H. C. Becker)

H. Becker has 20 year experiences in the supervision of PhD students in the fields of applied genetics and plant breeding research. Supervised PhD students came from Argentina, Bangladesh, Benin, Bulgaria, Brazil, P.R. China, Ethiopia, Germany, Ghana, Indonesia, Iran, Myanmar, Senegal, Serbia, Sri Lanka, Sudan, Sweden, Turkey, and Vietnam. A total of 28 dissertations (22 since 2001) were successfully completed under his guidance.

Participation in PhD-programs:
PhD program “International Program for Agricultural Sciences” (IPAG)
PhD program “Agricultural Sciences” (PAG)

One PhD student of H.Becker studied successfully in the IPAG program. H. Becker also served in the thesis committees of three PhD students of other sections of the department (Tropical Agronomy, Plant Nutrition and Plant Quality). The PhD program “Agricultural Sciences” started recently and all future doctoral candidates will study within IPAG or PAG.

PhD level courses:
Genetics and Plant Breeding Research (seminar)
New Developments in Plant Breeding Research (seminar)

International PhD student exchange:
Several PhD students had a sandwich scholarship performing part of their experimental research in their home countries under the guidance of a local co-supervisor. Four of them came from Ethiopia, and on each from Benin, China, Indonesia, Senegal, Sri Lanka, and Vietnam.

Thesis committees abroad:
H. Becker has served as an external referee for PhD students at the Universities of Lund (Sweden), Ås (Norway) and ETH Zürich (Switzerland). Experiences with a curricular PhD system were obtained from supervising two PhD students at the Swedish Agric. University.

PhDs in co-operation with industry:
Currently, five PhD projects are undertaken with industrial collaboration. The research is co-funded by the German plant breeding industry, and part of the experimental work is performed on breeding stations of the industrial partners.

Supervision of PhD students since 2001:

- Alemayehu N (2001) Germplasm diversity and genetics of quality and agronomic traits in Ethiopian mustard (*Brassica carinata* A. Braun)
    - First authorship: 3 orig. papers (Plant Breed, Genet Res Crop Evol, Eth J Sci)
- Jiang L (2001) A mutant with apetalous flowers in oilseed rape (*Brassica napus* L.) Mode of inheritance and influence on crop physiology and *Sclerotinia* infection
    - First authorship: 3 original papers (Crop Sci, J Appl Bot, Pflanzenbauwiss)
- Girke A (2002) Neue Genpools aus resynthetisiertem Raps (*Brassica napus* L.) für die Hybridzüchtung
    - 1 book chapter, 3 congress proceedings
- Gueye T (2002) Nitrogen efficiency of irrigated rice under West African conditions
- Gül K (2002) QTL-Kartierung und Analyse von QTL x Stickstoff Interaktionen beim Winterraps (*Brassica napus* L.)
    - Co-authorship: 1 original paper (Plant Breeding), 1 congress proceedings
- Zhao J (2002) QTLs for oil content and their relationship to other traits in an European x Chinese oilseed rape population
    - First authorship: 3 orig. papers (Crop Sci, Theor Appl Genet, Acta Genet Sin)
- Heberle B (2003) Verwendung von verdoppelt haploiden Linien zur Schätzung von genetischen Distanzen, Genzahl und epistatischen Effekten bei Winterraps
- Horneburg B (2003) Standortspezifische Sortenentwicklung – Studie mit Landsorten der Linse

    - First authorship: 1 original paper (Plant Breeding), 2 monographs
- Marwede V (2003) Genetische Analyse des Tocopherolgehaltes bei Winterraps
    - First authorship: 2 original papers (Crop Sci, Plant Breeding)
- Marschalek R (2003) Marker Assisted Selection for the development of intervarietal substitution lines in rapeseed (*Brassica napus* L.) and the estimation of QTL effects for glucosinolate content
- Nyikako J (2003) Genetic variation for nitrogen efficiency in oilseed rape (*Brassica napus* L.)
- Sasongko ND (2003) Increase of erucic acid content in oilseed rape (*Brassica napus* L.) through the combination with genes for high oleic acid
    - First authorship: 1 orignial paper (JAOCS)
- Zanklan S (2003) Agronomic performance and genetic diversity of the root crop yam beand (*Pachyrhizus* spp.) under West African conditions
    - First authorship: 2 original papers (Crop Sci)
- Baye T (2004) Exploration, genetic diversity and seed quality analyses in Ethiopian populations of *Vernonia galamensis*
    - First authorship: 5 original papers (Plant Breed, JAOCS, Euph, GRACE, Ind Crops)
- Hom NH (2004) Pollen genotype effects on seed quality and selection of single seeds by Near-Infrared Reflectance Spectroscopy in winter oilseed rape
    - First authorship: 1 original paper (Euphytica)
- Hüsken A (2004) Untersuchungen zur Sinapinsäureestersuppression und zur Expression von Resveratrol in transgener Rapssaat (*Brassica napus* L.)
    - First authorship: 2 original papers (Theor Appl Genet, Mol Breeding)
- Karuniawan A (2004) Cultivation status and genetic diversity of yam bean (*Pachyrhizus erosus* (L.) Urban) in Indonesia
- Galvao Bezerra Dos Santos K (2005) Isolation, molecular characterisation and chromosomal location of repetitive DNA sequences in *Brassica*
- Teklewold A (2005) Diversity Study Based on Quality Traits and RAPD Marker and Investigation of Heterosis in Ethiopian Mustard
    - First authorship: 4 original papers (Theor Appl Genet, Crop Sci, J Appl Bot, GRACE
- Zum Felde T (2005) Genetische Variation und Vererbung von Sinapinsäure-Verbindungen im Raps (*Brassica napus* L.)
    - First authorship: 1 original paper (Crop Sci)
- Abel S (2006) Resynthetisierter Raps als Modell zur Untersuchung der fixierten Heterosis bei allopolyploiden Pflanzen
    - First authorship: 1 original paper (Euphytica)
- Tamiru M (2006) Assessing diversity in yams (*Dioscorea* spp.) from Ethiopia based on morphology, AFLP markers and tuber quality, and farmers' management of landraces
    - First authorship: 1 original paper (Crop Sci)
- Vo TD (ongoing) Genetic variation on tea in Vietnam
- Rudolphi S (ongoing) Safflower as new oil crop for ecological farming
- Amar S (ongoing) Genetic variation in pyhtosterol content in rapeseed
- Kahlmeyer M (ongoing) identification of new mutants for oleic acid in *Brassica*
- Nath U (ongoing) Transgenic approaches for increasing erucic acid content
- Wijesekara K (ongoing) Development of a haploid transformation system
- Kebede B (ongoing) QTL analyses with help of substitution lines
- Radoev M (ongoing) Identification of QTL for heterosis in oilseed rape
- Ofori A (ongoing) *Brassica rapa* as source for bioenergy
- Niewitetzke (ongoing) Single seed analysis for increasing oleic acid content
- Wespel F (ongoing) *Brassica* as a model crop to investigate fixed heterosis
- Nurhasanah (ongoing) Introgression of exotic material into adapted oilseed rape

Name: **BEESE, FRIEDRICH**

Date of Birth: September 24th, 1943
Position: Professor (C4)
Address: Institute of Soil Science and Forest Nutrition
University of Göttingen, Buesgenweg 2,
D-37077 Göttingen, Germany
Phone: +49-551399765
Fax: +49-551393310
Email, web: fbeese@gwdg.de, www.gwdg.de/~ibw

Education and specialization:

1963-1964	Practical Farm work
1964-1968	Studies in Agriculture, Univ. Göttingen
1968	Diploma in Agronomy (main focus Plant Sciences)
1972	Dr. Soil Science (Soil hydrology), Univ. Göttingen
1986	Habilitation (Water and Nitrogen in Forest ecosystems), Univ. Göttingen

Academic appointments:

1972-1974	Postdoc, Inst. of Soil Science, Univ. Göttingen
1974-1987	Soil Scientist, Inst. of Soil Science and Forest Nutrition, Univ. Göttingen
1978-1979	DFG-Fulbright-Fellow, New Mexico State Univ., Las Cruces, N.M.
1987-1994	Director of the GSF-Institute of Soil Ecology, Muenchen
since 1994	Full professorship (C4) Institute of Soil Science and Forest Nutrition, Univ. Göttingen

Other professional/academic positions:

1990-1994	Speaker of the integrated project “Agroecosystems”, München
1990-1994	Coordinator of the GCTE Activities in Germany
1992-2000	Member of the German Advisory Council on Global Change (WBGU)
Since 1996	Speaker of the “Forest Ecosystem Research Centre”, Göttingen
1998-1999	Dean of the Forest Faculty, Göttingen
1998-2001	Jurymitglied “Deutscher Umweltpreis”
	Member in different scientific boards: UFZ, Halle/Leipzig; KFA-Jülich (Ökologie); Münchner Arbeitsgemeinschaft Luftschadstoffe (MABIF), München; Wissenschaftlicher Film, Göttingen; Nationalpark, Harz; Zentrum für Agrarlandschaftsforschung (ZALF), Müncheberg

Key research expertise:

- Turnover of water and bioelements in forest ecosystems
- Biotic regulation of soil C- and N-processes
- Transport processes of solutes in soils
- Modelling of water and solutes in soils
- Microbial indicators of soils

Major research funds since 2001 (selection):

- Mikrokalorimetrische Modelluntersuchungen zum Einfluss der Aggregierung auf die Steuerung mikrobieller Stoffwechselprozesse in Böden bei unterschiedlichen O_2-Partialdrucken (DFG, 2000-2002; 98,000 €)
- Flächenhafte Verteilungen der Humusmengen und –qualitäten in der Waldlandschaft Solling (BMBF 2000-2003; 92,000 €)
- Quantifizierung und Modellierung des mikrobiellen C- und N-Umsatzes in Böden nach Zufuhr isotopisch markierten Strohs (DFG, 2001-2003; 204,000 €)

- Optmierung der verfahren zur quellstärkenbestimmung am Beispiel von Aschen und Schlacken. Überprüfung und Optimierung bestehender Computermodelle für ungesättigte Böden (BMBF, 2001-2003; 305,000 €)
- Einfluss reduzierter Stoffeinträge auf die C-Dynamik und C-Speicherung eines sauren Fichtenwaldbodens (DFG, 2003-2005, 168,900 €)
- Einsatz von Komposten beim Waldumbau (DBU, 2002-2005; 94,000 €)
- Raumzeitliche Muster der Spurengasfreisetzungen auf Kleinkahlschlägen (DFG, 2004-2007; 180,490 €)
- Wasser- und Stoffdynamik im einzugsgebiet des Großen Stechlinsees. – Kalibrierung und Validierung des Modells „Expert-N" (UBA, 2004-2007; 230,000 €)
- „Silvaqua", Ein integriertes Bewertungssystem der Waldnutzung für die Wasserrahmenrichtlinie (Nieders. Umweltministerium, 2005-2008; 133,460 €)
- The role of tree biodiversity for biogeochemical cycles and biotic interactions in temperate deciduous forests "Phosphorus dynamics in soils" (DFG GRK 1086, 2005-200; 89,000 €)
- Anpassungsstrategien für eine nachhaltige Waldbewirtschaftung unter sich wandelnden Klimabedingungen (BMBF, 2007-2009; 110,500 €)
- Novalis – Zur naturverträglichen Produktion von Energieholz in der Landwirtschaft (DBU 2006-2008; 398,000 €

Other academic activities:

- Member of the Faculty Board 1996-2004
- Member of the Senate Commission for Research, Univ. Göttingen, 2003-2004
- Member of the Senate commission for Development and Finances, 2005-2006

Ten most important publications:

Dyckmans J, Flessa H, Lipski A, Potthoff M, Beese F (2006) Microbial biomass and activity under oxic and anoxic conditions as affected by nitrate additions. J.Plant Nutr. Soil Sci. 169: 108-115.

Potthoff M, Dyckmans J, Flessa H, Muhs A, Beese F, Joergensen RG (2005) Dynamics of maize (*Zea mays L.*) leaf straw mineralization as affected by the presence of soil and the availability of nitrogen. Soil Biology & Biochemistry 37: 1259-1266.

Raubuch M, Beese F (2005) Influence of soil acidity on depth gradients of microbial biomass in beech forest soils. Eur. J. Forest Res, 124: 87-93.

Meesenburg H, Merino A, Meiwes KJ, Beese F (2004) Effects of long-term application of ammonium sulphate on nitrogen fluxes in a beech ecosystem at Solling, Germany. Water, Air, and Soil Pollution: Focus 4: 415-426.

Teepe R, Brumme R, Beese F (2004) Nitrous Oxide Emission and Methane Consumption Following Compaction of Forest Soils. Soil Sci. Soc. Am. J. 68: 605-611.

Corre MD, Beese F, Brumme R (2003) Soil nitrogen cycle in high nitrogen deposition forest: changes under nitrogen saturation and liming. Ecol. Appl. 13: 287-298.

Teepe R, Dilling H, Beese F (2003) Estimating water retention curves of forest soils from soil texture and bulk density. J. Plant Nutr. Soil Sci. 166: 111-119.

Borken W, Muhs A, Beese F (2002) Changes in microbial and soil properties following compost treatment of degraded temperate forest soils. Soil Biol. Biochem. 34: 403-412.

Vor T, Dyckmans J, Flessa H, Beese F (2002) Use of microcalorimetry to study microbial activity during the transition from oxic to anoxic conditions. Biol. Fertil. Soils 36: 66-71.

Dyckmans J, Flessa H, Polle A, Beese F (2000) The effect of elevated CO_2 on uptake and allocation of ^{13}C and ^{15}N in beech (*Fagus sylvatica* L.) during leafing. Plant Biol. 2: 113-120.

Experience in the supervision of doctoral candidates (F. Beese)

Friedrich Beese has a long term experience in supervising doctoral candidates in the research fields mentioned above. 51 dissertations are completed and three more are in progress. A list of dissertations since 2000 is attached. The scientific work of the PhD students resulted in numerous publications in reviewed journals.

Participation in PhD-programs:
GRU - 1086

PhD level courses:
Lab practicals: Soil hydrology, Soil microbiology, Microcalorimetry

Supervision of PhD students since 2001:

- Evers J (2001) Stoffhaushalt und Waldbautechnik bei Erstaufforstungen ehemals landwirtschaftlicher Nutzflächen
- Chodak M (2002) Chemical and biological characteristics of organic layers under spruce and beech stands
    - First authorship: 5 original papers, 1 paper
    - Corresponding author: 1 original paper
- Ma K (2003) Simulation des Pestizidverhaltens im System Boden – Pflanze – Atmosphäre
- Cheussom L (2004) Hydrological Pattern in a Mixed Forest of Northern Germany
    - First authorship: 1 original paper, 1 paper
    - Corresponding author: 1 original paper, 2 papers
- Bagherzadeh Chaharjouee A (2004) Mechanisms of Carbon and Nitrogen transformations in Forest floors of Beech-, Spruce- and Mixed Beech-Spruce-Stands
    - First authorship: 2 original papers, submitted
- Mund M (2004) Carbon pools of European beech forests (Fagus sylvatica) under different silvicultural management
    - First authorship: 2 original papers
    - Corresponding author: 2 original papers, 2 book chapters
    - German Forest Science Award 2004
- Iroumé A (2005) Hydrological- and Sediment-Transport Processes in Forest Plantations in Southern Chile
    - First authorship: 3 original papers
    - Corresponding author: 3 original papers
- Berthold D (2005) Soil chemical and biological changes through the N_2-fixation of black locust (Robinia pseudoacacia L.) – A contribution to the research of tree neophytes
    - First authorship: 2 papers
    - Corresponding author: 1 original paper, submitted
- Horváth B (2006) Auswirkungen von Ökosystemmanipulationen auf Vorratsänderung und Freisetzung von C- und N-Verbindungen
    - First authorship: 3 original papers
    - Corresponding author: 1 original papers
- Lemke M (2006) Die C-Dynamik von Waldböden bei reduzierten Stoffeinträgen (Dachprojekt Solling)
- Fröhlich D (ongoing) Spatial Distribution of Trace Gas Emission on Clear Cuts
    - Corresponding author: 1 original paper
- Klinck U (ongoing) Spacial Distribution of Matter Turnover on Clear Cuts
    - First authorship: 1 original paper
- Talkner U (ongoing) The role of biodiversity for biogeochemical cycles and biotic interactions in temperate deciduous forests
- Ahrends B (ongoing) Impact of Forest Management Strategies on Streamwater Quality

Name: **FINKELDEY, REINER**

Date of Birth: April 25th, 1962
Position: Professor (C4)
Address: Institut für Forstgenetik und Forstpflanzenzüchtung
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Education and specialization:

1983-1988	Studies in Forestry (Göttingen Univ.)
1988	Diploma in Forestry of the Temperate Region
1988	Diploma in Tropical and Subtropical Forestry
1993	PhD in Forestry (Dr. forest), Göttingen University
2000	Habilitation (post lecturer qualification) in Forest Genetics and Forest Tree Breeding, Göttingen University

Appointments:

1988-1989	Visiting Research Fellow, Taiwan Forestry Research Institute (DAAD)
1990-1993	Scientist (PhD student), Göttingen University
1994-1996	Tree Improvement Expert, FAO; based in the Philippines
1996-1997	Scholarship Holder (Habilitationsstipendiat der DFG); Umeå, Bangkok
1997-2001	Project Leader, Forest Genetics; WSL Switzerland
since 2001	Full professorship (C4) in Forest Genetics and Forest Tree Breeding, Göttingen University

Awards:

1990	Klaus-Stern Award in Forest Genetics

Other professional/academic positions:

2001-2006	Lecturer at University of Forestry, Yezin, Myanmar; Bogor Agricultural University, Indonesia; Leyte State University, Philippines; HCM-University, HCM-City, Vietnam
since 2000	Advisor, International Foundation for Science (IFS), Sweden
since 2005	Affiliate Professor, Leyte State University, Philippines
since 2005	Expert (Sachverständiger) for tropical wood according to German Federal Nature Conservation Act
since 2006	Member of executive board and governing board of NoE EVOLTREE
since 2006	Dean, Faculty of Forest Sciences and Forest Ecology, Göttingen University

Key research expertise:

- Population Genetics and Ecological Genetics of Forest Trees
- Molecular Genetics of Plants
- Evolutionary Genetics of Tropical Forest Trees
- Breeding of Temperate and Tropical Forest Trees
- Conservation of Forest Genetic Resources in Tropical and Temperate Forests
- Human Impact on Forest Genetic Resources
- Genetics in Silviculture

Major research funds since 2001 (selection):

- DFG; Fi569/4-1; Genetic Variation of *Shorea* in Indonesia; 2003-2005; 138,000 €
- DFG/BMZ; Fi569/5-1 und -2; Genetic Variation of *Shorea* in Indonesia (BMZ support); 2003-2005; 59,000 €
- DFG; Fi569/4-2; Genetic Variation of *Shorea* in Indonesia; 2005-2006; 32,000 €
- DFG; Fi569/7-1; The reproduction system of spruce; 2003-2005; 78,000 €
- DFG; Fi569/7-2; The reproduction system of spruce; 2005-2006; 27,000 €
- DFG; Fi569/11-1; Genetic processes in Scots pine in the Chernobyl exclusion zone; starting 2007; approx. 290,000 €
- DFG; 436 UKR 113/65/U-1; Mutation rates of pines after the Chernobyl accident; 2003; 10,200 €
- EU; ASE/B7-301/1997/0179/02; Conservation of Plant Genetic Resources in SE-Asia (Coordinator);2003-2005; 198,000 €
- EU; EVOLTREE: Evolution of trees as drivers of terrestrial biodiversity (Network of excellence); 2006-2010; approx. 450,000 € (for Göttingen University)
- BMBF/GABI; GABI-0313156; DIGENFOR: Characterization of genes decisive for the adaptation of forest trees; 2004-2007; 234,000 €
- BMELV/BLE; 03HS047; Development of molecular markers to identify the origin of tropical wood; 2004-2007; 265,000 €

Other academic activities:

- Peer reviewer for various funding agencies: DFG, IFS (International Foundation for Science, Sweden), DAAD, BMZ (Ministry for Economic Copperation and Development), DBU (Deutsche Bundesstiftung Umwelt)
- Regular peer reviewer for various journals in the field of forest genetics, molecular genetics, plant biology

Ten most important recent publications:

Curtu A, Gailing O, Leinemann L, Finkeldey R (2007) Genetic variation and differentiation within a natural community of five oak species (Quercus spp.). Plant Biology 9: 116-126.

Finkeldey R and Hattemer HH (2007) Tropical Forest Genetics. Springer: Berlin, Heidelberg, New York. 315 pp.

Gugerli F, Walser J-C, Dounavi K, Holderegger R, Finkeldey R (2007) Coincidence of small-scale spatial discontinuities in leaf morphology and nuclear microsatellite variation of Quercus petraea and Q. robur in a mixed forest. Annals of Botany: doi: 10.1093/aob/mcm006.

Cao CP, Finkeldey R, Siregar IZ, Siregar UJ, Gailing O (2006) Genetic diversity within and among populations of Shorea leprosula Miq. and Shorea parvifolia Dyer (Dipterocarpaceae) in Indonesia detected by AFLPs. Tree Genetics and Genomes 2: 225-239.

Dučić T, Leinemann L, Finkeldey R, Polle A (2006) Uptake and translocation of manganese in seedlings of two varieties of Douglas Fir (Pseudotsuga menziesii var. viridis and glauca). New Phytologist 170: 11-20.

Indrioko S, Gailing O, Finkeldey R (2006) Molecular phylogeny of Dipterocarpaceae in Indonesia based on chloroplast DNA. Plant Systematics and Evolution 261: 99-115.

Luo ZW, Zhang Z, Pandey M, Gailing O, Hattemer HH, Finkeldey R (2006) Modeling population genetic data in autotetraploid species. Genetics 172: 639-646.

Gailing O, Kremer A, Steiner W, Hattemer HH, Finkeldey R (2005) Results on quantitative trait loci for flushing date in oaks can be transferred to different segregating progenies. Plant Biology 7: 516-525.

Finkeldey R and Ziehe M (2004) Genetic implications of silvicultural regimes. Forest Ecology and Management 197: 231-244.

Finkeldey R and Mátyás G (2003) Genetic variation of oaks (Quercus spp.) in Switzerland. 3. Lack of impact of postglacial recolonization history on nuclear gene loci. Theor Appl Genet 106: 346-352.

Experience in the supervision of doctoral candidates (R. Finkeldey)

R. Finkeldey has been involved in the supervision of PhD students in the field of molecular genetics of forest trees in Switzerland and Germany for more than ten years. Six PhD students from Indonesia, Nepal, Vietnam, China, Rumania, and Argentina (three in 2005 and three in 2006) completed their degree since he became Professor at Göttingen University. Currently, PhD students from Brazil (2), Ethiopia (2), Nigeria, Benin, Indonesia (2), Vietnam, Cyprus, and Greece, are working under his direct guidance. Since 2004, he served as co-referee of theses of five PhD students of the Faculty of Forest Sciences and Forest Ecology and of three PhD students of the Faculty of Agricultural Sciences (Göttingen University).

Participation in PhD-programs:
PhD program "Wood Biology and Technology"
PhD program "Forest Sciences and Forest Ecology"

Eight PhD students of R. Finkeldey study currently in the program "Wood Biology and Technology", and three in the program "Forest Sciences and Forest Ecology". In addition, R. Finkeldey serves currently in the thesis committees of five PhD students of the Institute of Forest Botany (Prof. Kües, Prof. Polle).

PhD level courses:
Forest genetics seminar (speakers: internal and external PhD students)
Forest genetics colloquium (speakers: invited scientists)
Tropical forest genetics (lecture for postgraduates)
Molecular genetics of forest trees (laboratory practical)

International PhD student exchange:
Nine of the eleven PhD students currently supervised by R. Finkeldey are from non-European countries. Most of them will return to their home countries upon completion
Dr. Lazlo Nyari, a former PhD student from the University of Sopron, Hungary, visited the group in 2004 for a short-term research stay (5 weeks). He recently (01/2007) joined the group as a PostDoc for at least one year. A PhD student from the University of Thrace, Greece, conducts part of his experimental work in the laboratory of the group supported by funds from a bilateral research project (IKYDA and DAAD). Exchange of PhD students within the Evoltree NoE is forthcoming.

PhDs in co-operation with other university institutes:
A PhD student from the Institute of Plant Breeding, Göttingen University, conducts his experimental work in the laboratories of the group. A PhD student from the University of Kassel is working on the genetics of earthworms in a collaborative project.

Supervision of PhD students
A) completed since 2005:

- Indrioko S (2005) Chloroplast DNA variation in Indonesian Dipterocarpaceae – Phylogenetic, taxonomic and population genetic aspects
    - First authorship: 1 original paper (Plant Syst Evol)
    - Co-authorship: 1 original paper (J Plant Res)
    - First authorship: 1 review paper (in German)
- Pandey M (2005) Development of microsatellites in sycamore maple (*Acer pseudoplatanus*) and their application in population genetics
    - First authorship: 2 original papers (Ann For Sci; Mol Ecol Notes)
    - Co-authorship: 1 original paper (Genetics)
- Luu H-T (2005) Genetic variation and the reproductive system of *Dipterocarpus* cf. *condorensis* Pierre in Vietnam
    - Co-authorship: 1 review paper (in German)
- Cao Cuiping (2006) Genetic variation of the genus *Shorea* (Dipterocarpaceae) in Indonesia

    - First authorship: 3 original papers (Tree Genetics and Genomes; J Plant Res; Allg Forst- u J-Ztg)
    - Co-authorship: 1 review paper (in German)
- Curtu AL (2006) Patterns of genetic variation and hybridization in a mixed oak (*Quercus* spp.) forest
    - First authorship: 2 original papers (Plant Mol Biol Rep; Plant Biology)
- Mottura M (2006) Development of microsatellites in *Prosopis* spp. and their application to study the reproduction system
    - First authorship: 2 original papers (Mol Ecol Notes; Plant Mol Biol Rep)

B) ongoing (in brackets: starting year; only published and accepted papers):

- Nascimento de Sousa S (since 2003): Gene flow through pollen in Norway spruce
    - First authorship: 1 original paper (Plant Mol Biol Rep)
    - First authorship: 1 book chapter
- Rachmayanti Y (since 2004): DNA extraction from tropical wood and identification of the origin of wood of Dipterocarpaceae
    - First authorship: 1 original paper (Plant Mol Biol Rep)
    - Co-authorship: 1 book chapter
- Stevenon M (since 2004): Genetic variation among natural and planted populations of *Araucaria angustifolia*
    - First authorship: 2 original papers (Plant Biol; Silvae Genetica)
    - First authorship: 1 book chapter
- Derero A (since 2004): Genetic variation of *Cordia africana* in Ethiopia
- Nuroniah H (since 2005): Development of markers for the identification of wood of tropical tree species
- Bekele T (since 2005): Genetic variation of *Hagenia abyssinica*
- Eliades N (since 2005): Spatial genetic structures within the endemic *Cupressus brevifolia*
- Nga, N.P. (since 2005): Molecular phylogeny of tribe Dipterocarpae
- Akinnagbe A (since 2005): Human impacts on genetic variation of two West-African rainforest species
- Vidalis A (since 2006): DNA-sequence variation at loci controlling isozymes
- Ekue M (since 2006): Genetic variation of the cultivated tree *Blighia sapida*

Name: **HERRMANN, BERND**

Date of Birth: February 3rd, 1946
Position: Professor (C3)
Address: Abt. Historische Anthropologie und Humanökologie
Johann Friedrich Blumenbach Institut für Zoologie und Anthropologie
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Education and specialization:

1965-1970	Studies in Biology (Free University Berlin)
1970	Diploma in Biology (major subject Physical Anthropology)
1973	PhD in Physical Anthropology (Free University Berlin)
1974	Habilitation in Physical Anthropology (Free University Berlin)

Academic appointments:

1970-1976	Assistant in Anthropology (Free University Berlin, with postdoc term at Stockholm University)
1976-1978	Assistant-Professor in Anthropology, Free University Berlin
since 1978	Full professorship in Biological Anthropology, Göttingen University

Awards and honours:

1995-1996	Fellow of the Institute for Advanced Studies Berlin
since 1998	Member of the German Academy of Natural Sciences LEOPOLDINA
since 2001	cooptated member of the Dept of History, Göttingen University

Other professional/academic positions:

1983-1984	Dean Biological Faculty Göttingen University
1985-1989	Member of the Academic Senate, Göttingen University
1991-1993	Member of Budget and Structure Committee, Göttingen University
1985-2005	Founding Spokesperson and Member of Advisory Board of the Foundation for the Environment of the State of Lower Saxony
80ies-90ies	positions in the Executive Board of the Gesellschaft für Anthropologie und Humangenetik, later Gesellschaft für Anthropologie
since 1992	Editor of Journal NATURWISSENSCHAFTEN
since 1997	Editor of Journal Anthropologischer Anzeiger Member of Editoral Boards: Human Biology; Int. J. Legal Medicine; Archaeometry (until summer 2007)
2003	Head of external evaluation group Biological Faculty, Vienna, AT
since 2004	Spokesperson Research Training Group 1024 German Science Foundation (“Interdisciplinary Environmental History”)

Key research expertise:

- Skeletal biology of ancient people; molecular anthropology (trace elements, ancient DNA); forensic anthropology
- Human ecology and environmental history

Major research funds since 2001:

- Rekonstruktion historischer Biodiversität aus archivalischen Quellen.; 2000 – 2003; BMBF 01LC0004; 291,000 €
- Paläogenetik als Schlüssel zum Kulturerbe – Entwicklung innovativer Techniken in der aDNA-Analytik, 2001 – 2004; BMBF 03HUX1GO; 598,100 € (shared with S. Hummel)
- Nasca: Entwicklung und Adaptation archäometrischer Techniken zur Erforschung der Kulturgeschichte (Humanökologisch-Paläogenetischer Teil), 2005 – 2007; BMBF 03HEX1VP, 454,500 €(shared with S.Hummel)
- DFG Graduiertenkolleg 1024 „Interdisziplinäre Umweltgeschichte. Naturale Umwelt und Gesellschaftliches Handeln in Miteleuropa. 1. Bewilligung 2004 – 2008; 1,500,000 € (Spokesperson; shared participation)

Other academic activities:

- Peer reviewer for various funding agencies in Germany, Austria, Great Britain, Czechia, Slovenia
- Regular peer reviewer for various journals in physical anthropology, human biology, forensic medicine, archaeometry
- Vistiting professor at universities of Vienna, Thessaloniki, London, Halle, Florence

Ten most important publications (including monographs and edited volumes)**:**

Herrmann B, Saternus K (eds) (2007) Biologische Spurenkunde Bd.I – Kriminalbiologie. Springer, Heidelberg (forthcoming).

Herrmann B (2006) Zur Historisierung der Schädlingsbekämpfung. In: Torsten Meyer, Marcus Popplow (Hg.) Technik, Arbeit und Umwelt in der Geschichte. Günter Bayerl zum 60. Geburtstag. Münster u.a. S. 317 – 338.

Herrmann B (2006) „Auf keinen Fall mehr als dreimal wöchentlich Krebse, Lachs oder Hasenbraten essen müssen!“ - Einige vernachlässigte Probleme der „historischen Biodiversität“. In: Hans-Peter Baum, Rainer Leng, Joachim Schneider (Hg.) Wirtschaft - Gesellschaft - Mentalitäten im Mittelalter. Festschrift zum 75. Geburtstag von Rolf Sprandel. Stuttgart (= Beiträge zur Wirtschafts- und Sozialgeschichte 107), S. 175 – 203.

Herrmann B (2006) Zwischen Molekularbiologie und Mikrohistorie. Vom Ort der Historischen Anthropologie. In: Aloys Winterling (Hrsg) Historische Anthropologie. Basistexte. Franz Steiner Verlag, Stuttgart, S. 67 – 80.

Hummel S, Schmidt D, Kremeyer B, Herrmann B, Oppermann M (2005) Detection of the CCR5-delta32 HIV resistance gene in Bronze age skeletons. Genes and Immunity 6, 371 – 374.

Kremeyer B, Hummel S, Herrmann B (2005) Frenquency analysis of the delta32ccr5 HIV resistance allel in a medieval Plague mass grave. Anthrop. Anz. 63, 13 – 22.

Benzing B, Herrmann B (eds) (2003) Exploitation and Overexploitation in Societies Past and Present. IUAES-Intercongress 2001 Göttingen. Lit-Verlag, Münster, Hamburg, Berlin, New York.

Herrmann B, Hummel S (2003) Ancient DNA can identify disease elements. In: Greenblatt,Ch., Spigelman,M (eds.) Emerging pathogens. Archaeology, Ecology & Evolution of Infectious Disease. Oxford University Press, 143 – 149.

Herrmann B (1997) „Nun blüht es von End`zu End`all überall.“ Die Eindeichung des Nieder-Oderbruches 1747-1753. Umweltgeschichtliche Materialien zum Wandel eines Naturraums. Unter Mitarb. v Martina Kaup. Waxmann, Münster, New York, München Berlin.

Herrmann B, Hummel S (eds) (1993) Ancient DNA. Recovery and Analysis of Genetic Material from Paleontological, Archaeological, Museum, Medical, and Forensic Specimens. Springer, New York.

Experience in the supervision of doctoral candidates (B. Herrmann)

Herrmann has a long - term experience in the supervision of PhD students.
He also serves regularly for theses committees within the Biological Faculty and the Philosophical Faculty at Göttingen University.

Participation in PhD programms:
(Research training groups of the German Science Foundation)
GRK 642 Wertschätzung und Erhaltung von Biodiversität (finished)
GRK 1024 Interdisziplinäre Umweltgeschichte: Naturale Umwelt und gesellschaftliches Handeln in Mitteleuropa
GRK 1034 Die Bedeutung genetischer Polymorphismen in der Onkologie: Von den Grundlagen zur individualisierten Therapie

Thesis committees abroad:
Herrmann has served as external referee for PhD committees in Vienna, Rome, Bilbao, and Nitra (Slovakia).

Supervision of PhD students since 2001:

- Schultes, Tobias (2001) Typisierung alter DNA zur Rekonstruktion von Verwandtschaft in einem bronzezeitlichen Skelettkollektiv
- Gerstenberger, Julia (2002) Analyse alter DNA zur Ermittlung von Heiratsmustern in einer frühmittelalterlichen Bevölkerung
- Fabig, Alexander (2002) Spurenelementuntersuchungen an bodengelagertem Skelettmaterial. Validitätserwägungen im Kontext diagenetisch bedingter Konzentrationsänderungen des Knochenminerals
- Klose, Johannes (2004) Aspekte der Wertschätzung von Vögeln in Brandenburg: Zur Bedeutung von Artenvielfalt vom 16. bis zum 20. Jahrhundert
- Schmidt, Diane (2004) Entwicklung neuer Markersysteme für die ancient DNA-Analyse
- Grosskopf B (2004) Leichenbrand - Quellenmaterial zur Rekonstruktion vor- und frühgeschichtlicher Populationen und ihrer Funeralpraktiken (ext. Univ. Leipzig)
- Zierdt, Holger (2005) Steroidhormone in bodengelagertem Skelettmaterial. Ein Ansatz zur Abschätzung von Fertilitätsparametern in historischen Bevölkerungen
- Schilz, Felix (2006) Molekulargenetische Verwandtschaftsanalysen am prähistorischen Skelettkollektiv der Lichtensteinhöhle

Name: **HÖLSCHER, DIRK**

Date of Birth: December 18th, 1964
Position: Professor (C3)
Address: Abt. Waldbau der Tropen
Institut für Waldbau
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Email, web: dhoelsc@gwdg.de,
http://www.waldbau.forst.uni-Göttingen.de/index_tropen.shtml

Education and specialization:

1984-1990	Studies in Forestry, Univ. Göttingen
1986	Study term at the Universidad de Los Andes, Mérida, Venezuela
1990	Diploma in Forestry, Univ. Göttingen
1991-1993	Field research in Eastern Amazonia, Brazil
1995	PhD in Forestry (Soil Science), Univ. Göttingen
2002	Visiting Scientist, Free University of Amsterdam, the Netherlands
2004	Habilitation in Botany, Univ. Göttingen

Academic appointments:

1995-1997	Postdoc, Soil Science, Univ. Göttingen
1997-2000	University Assistant (C1), Plant Ecology, Univ. Kassel
2000-2003	University Assistant (C1), Plant Ecology, Univ. Göttingen
since 2003	Full professorship (C3) in Tropical Silviculture, Univ. Göttingen

Other professional/academic positions:

since 2005	Vice-speaker of the Research Training Group 1086 (The Role of Biodiversity for Biogeochemical Cycles and Biotic Interactions in Temperate Deciduous Forests)
since 2006	Coordinator of sub-program 'Carbon, Water and Nutrient Turnover' in the SFB 552 (Stability of Tropical Rain Forest Margins, Indonesia)

Key research expertise:

- Ecological impact of tropical forest use
- Tropical forest recovery
- Tree ecology (water and carbon exchange)
- Forest hydrology

Major research funds since 2001 (selection):

- Tree diversity as a control of whole tree water use in experimentally assembled mixtures in Panama. (DFG, 2006-2009; 138,000 €)
- Drought effects on soil water regime and water partitioning in cacao agroforest in Sulawesi, Indonesia. (DFG, 2006-2009, Project B4, SFB 552 'Stability of Tropical Rain Forest Margins, Indonesia'; 150,000 €)
- Rainfall partitioning and soil water dynamics in forest stands of different tree species diversity, Hainich, Germany. (DFG, 2005-2009, Project B4, Research Training Group 1086 'The role of biodiversity for biogeochemical cycles and biotic interactions in temperate deciduous forests'; 75,000 €)
- Changes in the hydrological cycle along a gradient of forest use intensity. (DFG, 2003-2006, Project B4, SFB 552 'Stability of Tropical Rain Forest Margins, Indonesia'; 130,000 €; shared with Ch. Leuschner)

- Structural and functional plant diversity of different land use systems. (DFG, 2000-2003, Project C2, SFB 552 'Stability of Tropical Rain Forest Margins, Indonesia'; 125,000 €; shared with Ch. Leuschner)

Other academic activities:

- Peer reviewer for funding agencies in Germany, Sweden and the EU
- Regular peer reviewer for various journals in the field of forest ecology and hydrology

Ten most important publications:

Dietz J, Hölscher D, Leuschner Ch, Hendrayanto (2006) Rainfall partitioning in relation to forest structure in differently managed montane forest stands in Central Sulawesi, Indonesia. For Ecol Manage 237: 170-178.

Hölscher D, Leuschner Ch, Bohman K, Hagemeier M, Juhrbandt J, Tjitrosemito S (2006) Leaf gas exchange of trees in old-growth and young secondary forest stands of Central Sulawesi, Indonesia. Trees 20: 278-285.

Hölscher D, Koch O, Korn S, Leuschner Ch (2005) Sap flux of five co-occurring tree species in a temperate broad-leaved forest during seasonal soil drought. Trees 19: 628-637.

Hölscher D, Mackensen J, Roberts JM (2005) Forest recovery in the humid tropics: Changes in vegetation structure, nutrient pools and the hydrological cycle. In M Bonnell, & LA Bruijnzeel (eds). Forests, Water & People in the Humid Tropics. Cambridge University Press, Cambridge, 598-621.

Hölscher D (2004) Leaf traits and photosynthetic parameters of saplings and adult trees of co-existing species in a temperate broad-leaved forest. Basic Appl Ecol 5: 163-172.

Hölscher D, Köhler L, van Dijk AIJM, Bruijnzeel LA (2004) The importance of epiphytes to total rainfall interception by a tropical montane rainforest in Costa Rica. J Hydrol 292: 308-322.

Hölscher D, Köhler L, Leuschner Ch, Kappelle M (2003) Nutrient fluxes in stemflow and throughfall in three successional stages of an upper montane rain forest in Costa Rica. J Trop Ecol 19: 557-565.

Hölscher D, Hertel D, Leuschner Ch, Hottkowitz M (2002) Tree species diversity and soil patchiness in a temperate broad-leaved forest with limited rooting space. Flora 197: 1-8.

Hölscher D, de A. Sá TD, Möller RF, Denich M, Fölster H (1998) Rainfall partitioning and related hydrochemical fluxes in a diverse and in a mono specific (*Phenakospermum guyannense*) secondary vegetation stand in Eastern Amazonia. Oecologia 114: 251-257.

Hölscher D, de A. Sá TD, Bastos TX, Denich M, Fölster H (1997) Evaporation from young secondary vegetation in Eastern Amazonia. J Hydrol 193: 293-305.

Experience in the supervision of doctoral candidates (D. Hölscher)

D. Hölscher has experience in the supervision of PhD students in the fields of forest hydrology, forest productivity and tree ecophysiology. So far, three dissertations were successfully completed under his direct guidance. Supervised students come from Germany, Sweden, Belgium and the Philippines.

Participation in PhD-programs:
PhD program “Forest Sciences and Forest Ecology”
PhD program “Biological Diversity and Ecology”

Seven PhD students of D. Hölscher study currently in the programs “Forest Sciences and Forest Ecology” and “Biological Diversity and Ecology”. In addition, D. Hölscher serves currently in the thesis committees of five PhD students of another institute (Plant Ecology, Albrecht-von-Haller-Institute for Plant Sciences, Biology).

PhD level courses:
Silviculture (seminar)
Methods in Silviculture (seminar and practical)
Tropical Dendrology (seminar)

International PhD student exchange:
Since 2006, a PhD student from the Philippines (Leyte State University, Bay Bay) works in the group of D. Hölscher financed by DAAD. Five PhD students of D. Hölscher have their study sites abroad (Philippines, Indonesia, Panama, Brazil) and are associated with universities or research institutes of the respective countries.

Supervision of PhD students since 2001:

- Köhler L (2002) Die Rolle der Epiphyten im ökosystemaren Wasser- und Nährstoffkreislauf verschiedener Altersstadien eines Bergregenwaldes in Costa Rica
    - First authorship: 1 original paper (Plant Ecol), 2 book chapters
    - Co-authorship: 2 original papers (J Hydrol, J Trop Ecol), 2 book chapters
- Bohman K (2003) Funktionelle Vielfalt der Baumarten in verschiedenen Landnutzungssystemen im Randbereich des Lore Lindu Nationalparks, Zentral-Sulawesi (Indonesien)
    - Co-authorship: 3 original papers (Trees, J Trop Ecol, Ecotropica)
- Dietz J (2007) Rainfall partitioning in differently used montane rainforests of Central Sulawesi, Indonesia
    - First authorship: 2 original papers (For Ecol Manage, Flora), 1 book chapter
    - Co-authorship: 1 original paper (Agrofor Sys)
- Dierick D (ongoing) Tree water use rates in a multi-species reforestation and farming system in Leyte, the Philippines
- Adamek M (ongoing) Effects of increased N input on forest net primary production and structure in a lower montane rain forest of Panama
- Krämer I (ongoing) Rainfall partitioning and soil water dynamics in forest stands of different tree species diversity
- Sales-Come R (ongoing) Stand dynamics and water regime in a multi-species reforestation and farming system in Leyte, the Philippines
- Köhler M (ongoing) Drought effects on soil water regime and water partitioning in cacao agroforest and natural forest in Sulawesi, Indonesia

- Roeder M (ongoing) Seed and seedling ecology of lianas in natural and disturbed forests of Central Amazonia, Brazil
- Kunert N (ongoing) Tree diversity as a control of whole tree water use in experimentally assembled mixtures in Panama

Name: **ISSELSTEIN, JOHANNES**

Date of Birth: 2nd December 1959
Position: Professor (C3)
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Education and specialization:

1979-1984	Studies in Agricultural Sciences (Univ. Göttingen, Vienna)
1984	Diploma Agricultural Sciences, (Focus on Plant Production)
1988	PhD in Agronomy, Univ. of Göttingen
1995	Habilitation in Agronomy and Grassland Science, Univ. Gießen

Academic appointments:

1984-1988	Research Assistant, Univ. of Göttingen (Agronomy)
1988-1989	PostDoc University of Göttingen (Environmental Sciences)
1989-1994	PostDoc University of Gießen (Grassland Science)
1994	Research Fellow (DFG) Institute of Grassland & Environmental Research, UK
1995-1996	Associate Professor, Univ. of Gießen (Grassland Science)
since 1996	Full Professor (C3) Univ. of Göttingen, Grassland Science

Other professional/academic positions:

since 1999	Member of the Editorial Board of Germ. J. Agron.
since 2002	Member of the Editorial Board of J. Agr. Crop Sci.
since 2002	Head of the German Grassland Society
2002-2006	Member of the board of the European Grassland Federation
since 2004	Member of the DFG Review Board 207 (Agriculture, Forestry, Horticulture and Veterinary Medicine, subject area Plant Cultivation)
since 2005	Member of the board of the International Grassland Society

Key research expertise:

- Agronomy of grassland systems
- Grassland management and biodiversity
- Development of innovative schemes to enhance the agri-environment
- Nitrogen and potassium cycling in forage production systems
- Organic grassland farming and livestock production

Major research funds since 2001 (selection):

- Biodiversity and spatial complexity in agricultural landscapes – agroecology and socio economy, BMBF 01LC0620b, 2006-2009, 927,545 €, shared with R. Marggraf, T. Tscharntke
- Mechanisation of landscape conservation in nature reserves and FFH areas, DBU AZ 22629-34-0, 2005-2008, 529,590 €, shared with Agricultural Engineering Department at Göttingen University, co-operation with an industrial company
- Analysis and evaluation of potential developments of forage production and animal nutrition in organic farming, BMVEL/BLE 514-43.20/03OE475, 2004-2007, 86,435 €, shared with Animal Nutrition Department at Göttingen University
- Concepts for the accomplishment of ecological performances in agricultural landscapes - Biodiversity and spatial complexity, BMBF 01LC0020a, 2003-2006, 814,147 €, shared with R. Marggraf, T. Tscharntke

- Integrating foraging attributes of domestic livestock breeds into sustainable systems for grassland biodiversity and wider countryside benefits, EU QLRT-1999-30130, 2001-2005, 249,000 €, interdisciplinary project with partner institutions from five European countries
- Nutrient availability and utilization of clover and forb rich grasslands along the chain of forage production, conservation, and digestion, BMVEL/BLE 514-43.20/02OE621, 2002-2004, 71,052 €, together with Animal Nutrition Department at Göttingen University
- Biodiversity and spatial complexity in agricultural landscapes under global change, BMBF 01LC0020, 2000-2003, 850,749 €, shared with R. Marggraf, T. Tscharntke, S. Vidal

Other academic activities:

- Peer reviewer for funding agencies (DFG, DAAD, DBU, BMBF, AvH, Studienstiftung, Czech Research Foundation)
- Founder member of the Centre of Agronomy of Lower Saxony, contributing institutions: University of Göttingen (Agricultural Sciences, University of Hannover (Horticultural Sciences), Federal Biological Research Centre for Agriculture and Forestry (BBA), Federal Agricultural Research Centre (FAL)

Ten most important publications:

Isselstein J, Griffith BA, Pradel P, Venerus S (2007) Effects of livestock breed and grazing intensity on biodiversity and production in grazing systems. 1. Nutritive value of herbage and livestock performance. Grass and Forage Science, in press.

Klimek S, Richter gen. Kemmermann A, Hofmann M, Isselstein J (2007) Plant species richness and composition in managed grasslands: The relative inportance of field management and environmental factors. Biological Conservation 134, 559 – 570.

Marini L, Scotton M, Klimek S, Isselstein J, Pecile A (2007) Effects of local factors on plant speceis richness and composition of Alpine meadows. Agriculture, Ecosystems and Environment 119, 281-288.

Dalle Tussie, Gemedo, Maass BL, Isselstein J (2006) Encroachment of woody plants and its impact on pastural livestock production in the Borana lowlands, southern Oromia, Ethiopia. African Journal of Ecology 44, 237-246.

Isselstein J (2005) Enhancing grassland biodiversity and its consequences for grassland management and utilisation. In: Grassland: a global resource. XX International Grassland Congress. Invited Papers. Wageningen Academic Press, Wageningen, 305 – 320.

Kayser M, Isselstein J (2005) Potassium cycling and losses in grassland systems: a review. Grass and Forage Science 60, 213-224.

Hofmann M, Isselstein J (2004) Seedling recruitment on agriculturally improved mesic grassland: the influence of disturbance and management schemes. Applied Vegetation Science 7, 193-200.

Rook AJ, Dumont B, Isselstein J, Osoro K, WallisDeVries MF, Parente G, Mills J (2004) Matching type of livestock to desired biodiversity outcomes in pastures – a review. Biological Conservation 119, 137 – 149.

Gerowitt B, Isselstein J, Marggraf R (2003) Rewards for ecological goods – requirements and perspectives for agricultural land use. Agriculture, Ecosystems & Environment 98, 541 – 547.

Isselstein J, Tallowin JRB, Smith RES (2002). Factors affecting seed germination and seedling establishment of some fen-meadow species. Restoration Ecology 10, 173-184.

Experience in the supervision of doctoral candidates (J. Isselstein)

Since 2001 J. Isselstein has supervised 14 PhD students in the fields of grassland science and agronomy. Seven PhD students are currently working for their dissertation.

Participation in PhD-programs:
PhD program “International PhD Program for Agricultural Science (IPAG)”

PhD level courses:
Seminar in Crop sciences
Carl-Sprengel-Colloquium in Agronomy
Methodology in Grassland Vegetation Science (field course)

International PhD student exchange:
In 2005 and 2006 a PhD student from Padova (Italy) worked for six months in the group of J. Isselstein. He was in receipt of a grant of Padova University.

Thesis committees abroad:
J. Isselstein has served as an external referee for PhD students from Wageningen/The Netherlands, and from Prague/Czech Republic and for a habilitation at Prague University.

PhDs in co-operation with industry:
Currently, two PhD projects are undertaken in research with industrial collaboration. Eike Sieglerschmidt is co-operating with the largest water supplying company of North West Germany (OOWV) and Stefan Kesting is in a project with an agricultural engineering company (Schmidt Maschinenbau, Uchte). Four earlier PhD projects were conducted in co-operation with industrial and farming companies.

Supervision of PhD students since 2001:

- König HP (2002) Stickstoffumsatz und Nmin-Anreicherung auf Grünland während des Winters bei ganzjähriger Außenhaltung von Fleischrindern. Cuvillier, 121 S.
    - First authorship: 1 book chapter
- Kowarsch NR (2002) Möglichkeiten und Bedingungen der Erhöhung der Artenvielfalt auf artenarmem Grünland bei unterschiedlicher Bewirtschaftung über experimentelle Aussaat. Verlag Görich & Weiershäuser Marburg, 127 S.
    - First authorship: 1 book chapter, corresponding author: 1 book chapter
- Landwehr B (2002) Untersuchungen zur Nitratauswaschung unter Mähweiden in Abhängigkeit von der Stickstoffversorgung und dem Weidenutzungsanteil mit gesonderter Betrachtung der N-Dynamik an Harneintragstellen. Cuvillier, 102 S.
- Scheringer-Wright J (2002) Nitrogen on dairy farms: balances and efficiency. Goettinger Agrarwissenschaftliche Beiträge, Bd. 10, 110 p.
    - First authorship: 2 book chapters, corresponding author: 1 original paper (BerLandw)
- Kayser M (2003) Nitrogen and potassium leaching from grassland: The effect of fertilizer regime and application of cattle urine. Goettinger Agrarwissenschaftliche Beiträge, Bd. 14
    - First authorship: 2 original papers (GrassForSci, SoilUseManag), 1 book chapter, Corresponding author: 1 original paper (JAgrCropSci), 1 book chapter
- Kosch R (2003) Einfluss der Festmistaufbereitung und -anwendung auf die Stickstoffflüsse im ökologisch wirtschaftenden Futterbaubetrieb. Goettinger Agrarwissenschaftliche Beiträge, Bd. 12, 108 S.
    - First authorship: 1 original paper (), 1 book chapter
- Strodthoff J (2003) Heterogenität der Grasnarbe bei selektiver Beweidung von extensiviertem Niedermoorgrünland. Cuvillier, 98 S.
    - First authorship: 1 original paper (LandUseDev), 1 book chapter, Corresponding author: 1 book chapter

- Dalle Gemedo Tussie (2004) Vegetation ecology, rangeland condition and forage resources evaluation in the Borana Lowlands, Southern Oromia, Ethopia, Cuvillier, 258 p.
    - First authorship: 4 original papers (EconBot, IntJSustDevWorldEcol, CommEcol, AfrJEcol)
- Schiermann T (2004) Untersuchungen zur Variabilität und Kausalität des potentiellen Nitrataustrages beim Anbau von Zea mays in Deutschland. Dissertation. Georg-August-Universität, Göttingen. 138 S.
- Bertke E (2005) Ökologische Güter in einem ergebnisorientierten Honorierungs-system für ökologische Leistungen der Landwirtschaft. Herleitung – Definition – Kontrolle. Göttingen, Univ. Diss. ibidem Verlag, Stuttgart
    - First authorship: 2 original papers (LändlRaum), 6 book chapters, Corresponding author: 3 original papers (WeedRes, NovActLeop, AgrSpec)
- Sahin N (2005) Vegetationsentwicklung und Weideleistung von Grasland bei extensiver Beweidung mit Ochsen. Cuvillier, 66 S.
    - First authorship: 2 book chapters, corresponding author: 1 original paper (GrassForSci)
- Seidel K (2005) Stickstoffausträge und Stickstoffhaushalt nach Grünlanderneuerung und Grünlandumbruch. Goettinger Agrarwissenschaftliche Beiträge, Bd. 15, 95 S.
    - First authorship: 1 original paper (JAgrCropSci), 1 book chapter
- Klimek S (2006) Effects of local and landscape factors on grassland plant biodiversity. Dissertation University of Göttingen.
    - First authorship: 1 original paper (Biol.Conserv.), 1 book chapter, Corresponding author: 1 original paper (AgrEcoEnv)
- Röver K-U (2006) Grazing behaviour and performance of beef cattle on grassland managed for biodiversity benefits. Goettinger Agrarwissenschaftliche Beiträge, Bd. 16, 95 S.
    - Corresponding author: 1 original paper (GrassForSci), 1 book chapter

Name: **KESSLER, MICHAEL**

Date of Birth: March 7th, 1967
Position: Professor (extracurricular; "apl. Prof.")
Address: Dept. of Systematic Botany
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Education and specialization:

1986-1993	Studies in Biology (Univ. Göttingen)
1993	Diploma in Biology (main focus Botany)
1995	PhD in Botany, Univ. Göttingen
2001	Habilitation in Botany, Univ. Göttingen
2006	Apl. Prof., Univ. Göttingen

Academic appointments:

1998-2001	Habilitation-Scholarship of the DFG
2001-2006	Heisenberg-Scholarship of the DFG
since 2006	Assistant, Univ. Göttingen
since 2007	Extracurricular Professor, Univ. Göttingen

Other professional/academic positions:

1992-1997	Member of Board of Directors Foundation for Tropical Research and Exploration
since 2001	Member of the Editorial Kommission of Flora Neotropica
2006	Member Scientic Advisory Committee GLOCHAMORE (Global Change and Mountain Regions) of the Mountain Research Initiatice, UNESCO-MAB and IHP, and the EU Framework Programme 6
since 2006	Member of the Editorial Board of Basic and Applied Ecology

Key research expertise:

- Tropical biodiversity gradients (mainly elevation and land use) of plants and animals
- Tropical biogeography and macroecology
- Taxonomy, systematics and evolution of neotropical Pteridophyta and Rosaceae
- Plant-pollinator and plant-disperser interactions
- Biodiversity-productivity relationships

Major research funds since 2001 (selection):

- Diversity and functionality of herbs and trees in the 3rd phase of the SFB 552 Stability of Rainforest Margins (DFG 2006-2009; TPC2: 160,000 €, shared with SR Gradstein)
- Cryptogamic diversity of the Purdiaea nutans-forest of southern Ecuador in relation to soil, climate and vegetation structure (DFG 2003-2006; TPA4: 170,000 €, shared with SR Gradstein, H Sipman, U Makeschin, M Richter)
- Ressource availability and niche breadth of the avifauna in three different forest types at the Biological Station „Los Volcanes“, Bolivia (DFG 2002-2007; 48,000 €, shared with SK Herzog)
- Morphological-anatomical traits and diversity of pteridophytes along an elevational gradient in Costa Rica (DFG 2002-2005; 55,000 €)
- Experimental studies on the lower elevational distribution limits of plant species in the Bolivian Andes (DFG, 2002-2005; 20,500 €)

- Heisenberg-Scholarship (DFG 2001-2006; 235,000 €)
- Fern Flora of Bolivia (DFG 2001-2006; 40,000 €)

Other academic activities:
- Peer reviewer for DFG
- Regular peer reviewer for various journals in the field of botany and ecology

Ten most important publications:
Kluge J, Kessler M, Bach K (2007) Elevational distribution and zonation of tropical pteridophyte assemblages in Costa Rica. Basic and Applied Ecology, in press.

Steffan-Dewenter I, Kessler M, Barkmann J, Bos M, Buchori D, Erasmi S, Faust H, Gerold G, Glenk K, Gradstein SR, Guhardja E, Harteveld M, Hertel D, Höhn P, Kappas M, Köhler S, Leuschner C, Maertens M, Marggraf R, Migge-Kleian S, Mogea J, Pitopang R, Schaefer M, Schwarze S, Sporn SG, Steingrebe A, Tjitrosoedirdjo SS, Tjitrosoemito S, Twele A, Weber R, Woltmann L, Zeller M, Tscharntke T (2007) Tradeoffs between income, biodiversity, and ecosystem function during rainforest conversion and agroforestry intensification. Proceedings National Academy Sciences, USA., in press.

Herzog SK, Kessler M (2006) Local vs. regional control of species richness: a new approach to test for competitive exclusion at the community level. Global Ecol. Biogeogr. 15: 163-172.

Kluge J, Kessler M (2006) Fern endemism and its correlates: contribution from an elevational transect in Costa Rica. Diversity and Distributions 12: 535-545.

Kluge J, Kessler M, Dunn R (2006) What drives elevational patterns of diversity? A test of geometric constraints, climate, and species pool effects for pteridophytes on an elevational gradient in Costa Rica. Global Ecol. Biogeogr. 15: 358-371.

Herzog SK, Kessler M, Bach K (2005) The elevational gradient in Andean bird species richness at the local scale: a foothill peak and a high-elevation plateau. Ecography 28: 209-222.

Schmidt-Lebuhn AN, Kessler M, Müller J (2005) Evolutionary history of Suessenguthia (Acanthaceae) inferred from morphology, AFLP data and ITS rDNA sequences. Organisms, Diversity and Evolution 5: 1-13.

Kessler M (2002) The elevational gradient of Andean plant endemism: varying influences of taxon-specific traits and topography at different taxonomic levels. J. Biogeogr. 29: 1159-1166.

Kessler M (2001) Patterns of diversity and range size of selected plant groups along an elevational transect in the Bolivian Andes. Biodiv. Conserv. 10: 1897-1920.

Kessler M (2001) Maximum plant community endemism at intermediate intensities of anthropogenic disturbance in Bolivian montane forests. Conserv. Biol. 15: 634-641.

Experience in the supervision of doctoral candidates (M. Kessler)

M. Kessler has seven year experience in the supervision of PhD students in the fields of plant taxonomy, systematics, biogeography and ecology. Five dissertations have been successfully completed under his direct guidance, a further eight are currently being supervised.

PhD level courses:
Biodiversity and biogeography (lecture)
Biodiversity and biogeography (laboratory practical)
Plant Systematics (laboratory practical)

International PhD student exchange:
Five of Kessler's PhD students came from South America (Colombia, Ecuador, Peru) to conduct their thesis work at the Univ. of Göttingen with financial support from the DAAD. A further student is co-supervised in collaboration with the University of Turku, Finland.

Thesis committees abroad:
M. Kessler has served as an external referee for two PhD students in Denmark, and for one PhD student in Finland.

Supervision of PhD students since 2001:

- Gonzales J (2003) Revision of the genus *Sticherus* (Gleicheniaceae) for *Flora Neotropica*
    - First authorship: 1 original monograph (Flora Neotropica)
- Bach K (2004) Vegetation studies on the elevational zonation of tropical mountain forests in the Bolivian Andes
    - First authorship: 2 original papers (Divers Distrib, BAAE)
- Jácome J (2005) Experimental studies on the lower elevational distribution limits of plant species in the Bolivian Andes
    - First authorship: 2 original papers (Ecotropica, Global Ecol Biogeogr)
- Schmidt-Lebuhn A (2005) Comparative biogeography and evolutionary biology of the Andean genera *Minthostachys* (Lamiaceae) and *Polylepis* (Rosaceae)
    - First authorship: 13 original papers (ODE, Syst Bot, 2 x Flora, Taxon, 2 x Plant Syst Evol, 2 x Bot J Linn Soc, Candollea, Edinb J Bot, Mem NY Bot Gard)
- Kluge J (2006) Fern assemblages along an elevational gradient in Costa Rica: diversity, ecology, and morphological-anatomical traits
    - First authorship: 6 original papers (Brenesia, Divers Distrib, Global Ecol Biogeogr, J Trop Ecol, Ecotropica, BAAE)
- Cicuzza D (ongoing) Herb assemblages along land use gradients in Central Sulawesi, Indonesia
- Lehnert M (ongoing) Ecology, biogeography, and evolution of Andean pteridophyta
    - First authorship: 7 original papers (2 x Amer Fern J, 4 x Brittonia, ODE), 2 book chapters
- Linares-Palomino R (ongoing) Ecology and biogeography of dry forests in central South America
    - First authorship: 5 original papers (Candollea, 2 x Arnaldoa, Rev Peruana Biol, For Ecol Manage), 1 book chapter
- Mandl N (ongoing) Bryophytes and lichens of the *Purdiaea nutans*-forest of southeastern Ecuador
    - First authorship: 1 book chapter
    - First authorship: 1 book chapter
- Soria R (ongoing) GIS-Modelling and – analysis of the distribution of plants, birds and dung beetles as basis for biogeographic analyses as well as nature conservation and land use planning

- Steudel B (ongoing) Function of „redundant“ species in species-rich ecosystems: testing the insurance hypothesis of biodiversity
- Toivonen J (ongoing) Distribution and ecology of the genus *Polylepis* (Rosaceae) in Peru

Name: **KLASEN, STEPHAN**

Date of Birth: June 18th, 1966
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Phone: +49-551-397303
Fax: +49-551-397302
Email, web: sklasen@gwdg.de, http://www.vwl.wiso.uni-Göttingen.de/klasen.html

Education and Specialization:

1987-1990	Studies in economics, Harvard University (B.A. *summa cum laude* 1990)
1990-1991	Studies in economics, Harvard University (M.A. 1991)
1991-1994	PhD in economics, Harvard University (1994)
1994-1996	Economist, World Bank, Washington, DC.

Academic appointments:

1996-1998	Research Fellow and Associate Director, Centre of History and Economics, King's College, Cambridge, England
1998-2003	Professor (C3) of empirical economics, University of Munich (LMU)
since 2003	Professor of development economics (C4, since 2006 W3) University of Göttingen

Awards and honours (selection):

1991	Allyn Young Prize for best thesis in economics faculty, Harvard University
1991-93	Derek Bok Centre Teaching Prize every semester (among top 5% of student evaluations), Harvard University
2002	Elected Member, European Development Network
2006	World Bank "Green Award" for "leadership and commitment in promoting environmental sustainability in World Bank projects"
2007	Elected to Academy of Sciences, Göttingen

Other professional/academic positions:

since 2004	Managing Editor, *Review of Income and Wealth*
since 2003	Editorial Board, *Economic Systems, Applied Economics Quarterly*, *Journal of Human Development*
since 2003	Research Professor, ifo institute Munich
since 2003	Research Fellow, CESifo Munich
since 2002	Research Fellow, IZA Bonn
since 2003	Senior Research Fellow, Centre for Development Research, Bonn
since 2004	Scientific Advisory Council, German Ministry of Economic Cooperation and Development
since 2005	Founding Member, Poverty Reduction, Equity, and Growth Network (coordinated by Kiel Institute for World Economics)
since 2004	Council, Society for the Study of Economic Inequality

Key research expertise:

- Measurement of poverty, inequality, vulnerability in income and non-income dimensions
- Causes and consequences of gender inequality in developing countries
- Determinants of economic growth in developing countries
- Linkages growth, inequality, poverty
- Determinants of undernutrition and child mortality in developing countries
- Economic assessment of environmental impacts on development projects
- Linkages poverty and natural resource use

Major research funds since 2001:

- Global inequality and absolute poverty. 2007-2009. DFG-project (75,000 €), jointly with Elke Mack (Theology, University of Erfurt)
- The impact of differential mortality on welfare and its measurement. 2006-2008. DFG-project (80,000 €) jointly with Michael Grimm (Economics, University of Göttingen)
- Gender bias in mortality and health access in South Asia, 2005-2007. DFG-project (175,000 €) with Abay Asfaw, Intern. Food Policy Research Institute, Washington, DC
- Vulnerability and households dynamics: conceptual and empirical issues for Thailand and Vietnam, part of collaborative research team (FOG756): Impact of Shocks on the Vulnerability to Poverty. 2006-2009, funded by DFG (135,000 €)
- Poverty, Vulnerability, and Gender Dynamics and the Intra-household, household, local, regional, and national level. Project A6 of Collaborative Research Centre (SFB552) Stability of Rainforest Margins in Indonesia. 2006-2009, funded by DFG (140,000 €), jointly with Michael Grimm
- Determinants of poverty in Kenya. 2006-2007. Funded by German Technical Assistance Agency (GTZ, 40,000 €)
- Operationalising Pro-Poor Growth 2003-2005. World Bank coordinated (and German Development Cooperation-funded) research program on determinants of pro-poor growth (charged with case study of Bolivia and analysis of gender and pro-poor growth, 36,000 €)
- Discrete Structures in Labor and Population Economics. 1999-2003 part of DFG-Collaborative Research Centre (SFB 386): Analysis of Discrete Structures (University of Munich, 290,000 €)
- Growth, inequality, and well-being in transition countries. 2002-2004. Jointly with ifo Institute Munich. Funded by Thyssen Foundation (75,000 €)
- Co-Speaker, interdisciplinary DFG-supported PhD program on 'post-colonial studies'. 2001-2003. University of Munich (own share:60,000 €)

Other academic activities:

- Peer reviewer, over 20 economic journals, DFG and its equivalents in Switzerland, Wellcome Trust, among others.
- Scientific Advisory Council, German Institute for Global and Area Studies (GIGA), Hamburg, Developpement, Institutions & Analyses de long terme (DIAL), Paris.

Ten most important publications:

Klasen S (2007) Poverty, Undernutrition, and Child Mortality: Some Inter-Regional Puzzles and their Implications for Research and Policy. *Journal of Economic Inequality (forthcoming)*.

Klasen S and Nestmann T (2006) Population, Population Density and Technological Change. *Journal of Population Economics* 19(3): 611-626.

Woolard I and Klasen S (2005) Income Mobility and Household Poverty Dynamics in South Africa. *Journal of Development Studies* 41: 865-897.

Caputo A, Foraita R, Klasen S and Pigeot I (2003) Undernutrition in Benin: An Analysis based on Graphical Models. *Social Science and Medicine* 56: 1677-1691.

Klasen S (2002) Low Schooling for Girls, slower Growth for All? *World Bank Economic Review* 16: 345-373.

Klasen S (2002) Social, Economic, and Environmental Limits for the Newly Enfranchised in South Africa? *Economic Development and Cultural Change* 50:607-642.

Klasen S and Wink C (2002) A Turning-Point in Gender Bias in Mortality? An Update on the Number of Missing Women. *Population and Development Review* 28: 285-312.

Kandala NB, Faihrmeir L, Klasen S and Lang S (2001) Semiparametric Analysis of the Socio-Demographic and Spatial Determinants of Chronic Undernutrition in Two African Countries*. Research in Official Statistics* 4(1): 81-100.

Klasen S (2000) Measuring Poverty and Deprivation in South Africa. *Review of Income and Wealth* 46: 33-58.

Klasen S (1996) Nutrition, Health, and Mortality in Sub-Saharan Africa: Is there a Gender Bias? *Journal of Development Studies* 32: 913-933.

Experience in the supervision of doctoral candidates (S. Klasen)

Stephan Klasen has 9 years experience in the supervision of PhD students in the fields of development economics, empirical economics, labour economics, environmental economics, and welfare economics. A total of 11 dissertations were completed during this time under his supervision and another 16 are currently on-going. These PhD students include students from Colombia, Ethiopia, Bolivia, Pakistan, Turkey, Ukraine, Sierra Leone, and Germany.

Participation in PhD Programs:
PhD Program "Applied Statistics and Empirical Methods", University of Göttingen (since 2004), funded by Georg Lichtenberg Grant
DFG- funded PhD Program "European Social Model", University of Göttingen (since 2004)
DFG-funded PhD Program "Post-colonial studies", University of Munich (LMU, 2001-2003)
DFG-funded PhD Program "Markets, Institutions and the Scope of Government" Munich Graduate School of Economics (LMU), 2003-2006

PhD level courses:
Advanced Development Economics (Munich: summer 2003, Göttingen: summer 2004, 2006)
Analysis of Micro Data (Munich: summer 1999, summer 2001, Göttingen: summer 2005)
Poverty, inequality and welfare economics (Munich: summer 2000)
Doctoral research seminar (every semester 2000-2003 in Munich and 2004-present in Göttingen)

International PhD Student Exchange:
Participation in European Doctoral Group in Economics (including Universities of Munich, Cambridge, Aix-Marseilles, Bocconi (Milan), Copenhagen, Dublin, funded in Munich via Marie Curie Training Site (2002-2004); own doctoral students in Munich participated in international exchanges und yearly joint research seminar. I am also supervising three PhD students in the PhD program at the Centre for Development Research for Bonn, which draws most of its PhD students from developing countries who come to the Centre for a PhD

Thesis Committees at other universities:
External referee and/or thesis committee member for PhD students at the University of Oslo (Norway), Monash University (Australia), Sorbonne (Paris, France), University of Gothenburg (Sweden), National University of Science and Technology (Pakistan), University of Mainz (Germany), University of Tübingen (Germany) and University of Bonn (Germany).

Supervision of PhD Students since 2001 (completed):

- Gartner H (2002) Aufsätze zur ökonometrischen Analyse diskreter Strukturen in der Arbeitsmarkt- und Entwicklungsökonomie (LMU Munich)
- Grün C (2003) Essays in the Economics of Inequality (LMU Munich)
    - 3 refereed journal publications (Economics of Transition, CESifo Economic Studies, International Journal of Manpower)
- Tiruneh Menbere W (2003) External Imbalances as an Explanation for Growth Rate Differences across Time and Space: An Econometric Exploration, (LMU Munich)
    - 1 refereed journal publication (Czech Journal of Economics and Finance)
- Lovetta Sesay F (2004) Conflicts and Refugees in Developing Countries (LMU Munich)
- Maier R (2004) Macroeconomic Policy for Pro-Poor Growth, (LMU Munich)
- Trübswetter P (2005) Essays in Empirical Population Economics, (LMU Munich)
    - 2 refereed journal publications (Applied Economics Quarterly, Schmollers Jahrbuch)
- Launov A (2006) Structural Estimation of Search Equilibrium Models with Wage Posting (LMU Munich)
    - 1 refereed journal publication (Journal of Population Economics)

- Lay J (2006) Evaluating the Poverty and Distributional Impact of Economic Policies and External Shocks Combining Macro and Micro Approaches: Three case studies from Latin America (U Göttingen)
    - 1 refereed journal publication (Development Policy Review), 1 refereed book chapter (Palgrave Macmillan)
- Utku Teksöz S (2006) Essays in Development and Transition Economics, (LMU Munich)
    - 1 refereed journal publication (International Journal of Forecasting), 1 refereed book chapter (MIT Press)
- Albrecht J (2007) Entwicklung des Lebensstandards im Postsowjetischen Zentralasien während der Transformation (LMU Munich)
- Günther I (2007) Four Essays on Empirical Analysis of Poverty Dynamics with case studies from Sub-Saharan Africa (U Göttingen)
    - 2 refereed journal publications (Journal of Development Economics, Journal of African Economies), 1 refereed book chapter (Palgrave Macmillan)

Supervision of PhD Students since 2001 (on-going):

- Grosse M, Three essays on poverty and welfare measurement with case studies from Latin America (U. Göttingen, since 2003)
- Schüler D, On the economics of migration and inequality (U. Göttingen, since 2003)
    - 1 refereed journal publication (Journal of Human Development)
- Weisbrod J, Growth, Poverty and Inequality: Dynamic analysis on the Macro- and Microlevel (U. Göttingen, since 2003)
- Cardozo A, Growth, Poverty, and Inequality in Colombia (U.Göttingen, since 2004)
- Harttgen K, Essays on the determinants, distribution, and dynamics on poverty (U. Göttingen, since 2004)
    - 1 refereed journal publication (Oxford Economic Papers), 1 refereed book chapter (Palgrave Macmillan)
- Misselhorn M, Improvements in the Measurement of Poverty in Developing Countries (U. Göttingen, since 2004)
- Omar Velazquez I, Extreme poverty, vulnerability and coping strategies in rural Bolivia (U. Göttingen, since 2004)
- Roth F, Trust, Social Capital and Economic Growth (U. Göttingen, since 2004)
- Seebens H, Three Essays on Gender Economics (U. Göttingen, since 2004)
    - 1 refereed journal publication (African Development Review)
- Nawaz A, Issues in Efficiency and Sustainability of Microfinance (U. Göttingen, since 2005)
- Syed Mohammad A, Determinants of gender bias in mortality in Pakistan (U. Göttingen, since 2005)
- Branisa Caballero B, The evolution of income inequality in Bolivia (U. Göttingen, since 2006)
- Gaddis I, Poverty Dynamics in Kenya (U. Göttingen, since 2006)
- Priebe J, Four Essays on poverty, deprivation and mortality in South/South East Asia (U. Göttingen, since 2006)
- Vollmer S, Essays on Trade, Growth, and Convergence (U. Göttingen, since 2006)
    - 2 refereed journal publications (Journal of Common Market Studies, Applied Econometrics and International Development)
- Ziegler M, Ethnic Discrimination in the Provision and Delivery of Goods and Services via the Public Sector and its Effect on Poverty and Inequality (U. Göttingen, since 2006)

Name: **KLEINN, CHRISTOPH**

Date of Birth: February 19th, 1960
Position: Professor (C3)
Department: Institute of Forest Management
Georg-August-Universität Göttingen
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Education and specialization:

1978-1984	Studies in Forest Sciences, Albert-Ludwigs-Universität Freiburg (Diploma 1984)
1991	Dr. rer. nat. in Forest Sciences, Albert-Ludwigs-Universität Freiburg
1998	Habilitation in Forest Inventory and Forest Biometry, Albert-Ludwigs-Universität Freiburg

Academic appointments:

1987-1991	Research Associate and
1991-1996	Assistant Professor (Wiss. Assistent C1), both apppointments at Section of Forest Biometry, Albert-Ludwigs-Universität Freiburg
1997-2001	Associate Professor, Head of Biostatistics Section, CATIE (Tropical Agricultural Research and Higher Education Centre), Costa Rica
since 2002	Professor of Forest Inventory and Remote Sensing, Georg-August-Universität, Göttingen

Other professional experience:

1985-1987	Software developer at Computer Centre, University Hospital Freiburg. Short term assignments as a consultant in natural resources assessments projects and as Instructor in capacity building and training courses: for FAO, GTZ, DFID-FRP, DSE-InWENT, FINIDA, WWF, FSL and private companies in Brazil, Costa Rica, Chile, Colombia, Cyprus, Honduras, Guatemala, Indonesia, Laos, Malawi, Mozambique, Nepal, Thailand, The Philippines, Switzerland, Zambia

Key research expertise:

- Optimization of natural resources inventory, monitoring and assessment
- Statistical sampling and response design techniques to improve the efficiency of natural resource inventories, including the assessment of the tree resource outside the forest and non-timber forest products
- Sample based estimation of elements of biodiversity, including the estimation of species richness and the estimation of metrics to describe the diversity of fragmented landscapes
- Forest biomass modeling and estimation approaches
- Research into the further development of algorithms for the efficient use of remote sensing techniques in for natural resources assessment and land use planning
- Statistical research methods and planning of scientific studies: biostatistics, experimental design, sampling techniques

Major research funds since 2001:

- EU INCO (international cooperation): Proyecto TROF (1998-2001, Central America, technical coordinator, 700,000 €); Proyecto Fragment (2001-2003, Central America,

project partner 650,000 €), Proyecto Guadua (2001-2003, Latin America, associated project partner, 850,000 €)
- 5 DFG funded projects (700,000 €)

Other academic activities:
- Head of an evaluation team for the Advisory Service of International Agricultural Research (BEAF) of the German Ministry for International Cooperation (BMZ) (2006-)
- Peer reviewer for leading forest research journals (including Forest Science, Forest Ecology and Management, Canadian Journal of Forest Research, European Journal of Forest Science, Scandinavian Journal of Forest Science, and others)
- Peer reviewer for funding agencies in Germany, Belgium, Costa Rica, Sweden.
- Scientific Advisor to the International Foundation for Science (IFS) since 1997
- Coordinator for the academic partnership program between the Faculty of Forestry at Georg-August-Universität Göttingen and the forestry faculty of the Universidad Autónoma de Nuevo León in Linares, México
- Coordinator for the academic partnership program and the DAAD funded exchange program between the Faculty of Forestry at Georg-August-Universität Göttingen and the forestry faculties of Universidad Austral de Chile in Valdivia and Universidad de Concepción, Chile. Ongoing (2007): development of a joint MSc degree program between these three forestry faculties
- Reviewer in the EU-Alban program (selection of PhD and MSc scholarships for Latin American candidates in the EU); since 2003
- Member of the Faculty Board (since 2003), Faculty Planning Commission (since 2005) and other caculty commissions in the Forestry Faculty at Georg-August-Universität Göttingen

Ten most important publications:

Magnussen S, Picard N, Kleinn C. *In press.* A gamma-Poisson distribution of the point to the *k* nearest event distance. European Journal of Forest Research.

Fehrmann L and Kleinn C (2006) Universal scaling principles and allometric equations for biomass estimation - the example of Norway spruce in Central Europe. Forest Ecology and Management. Online published Sept. 2006.

Kleinn C and Morales D (2006) An inventory of Guadua bamboo *(Guadua angustifolia*) in the coffee region of Colombia. European Journal of Forest Research. 125(4) p. 361-368.

Kleinn C and Vilčko F (2006) Design unbiased estimation for point to tree distance sampling. Canadian Journal of Forest Research 36(6):1407-1414.

Kleinn C and Vilčko F (2006) A new empirical approximation for estimation in *k*-tree sampling. Forest Ecology and Management 237(2):522-533.

Tilahun M, Olschewski R, Kleinn C and Gebrehiwot K (2006) Economic analysis of closing degraded *Boswellia Papyrifera* dry forest from human interventions – a study from Tigray, Northern Ethiopia. Forest Policy and Economics. Online published Oct 2006.

Kleinn C, Ramírez C, Holmgren P, Chavez G and Lobo S (2005) A national forest resources assessment for Costa Rica based on low intensity sampling. Forest Ecology and Management. 210:9-23.

Kleinn C, Corrales L, Morales D (2002) Large area forest cover estimates in the tropics – the case of Costa Rica. Environmental Assessment and Monitoring 73(1):17-40.

Kleinn C, Traub B and Hoffmann C (2002) A note on the slope correction and the estimation of the length of line features. Canadian Journal of Forest Research 32(4): 751-756.

Kleinn C (2001) A cautionary note on the minimum crown cover criterion in forest definitions. Canadian Journal of Forest Research 31(2):350-356.

Experience in the supervision of doctoral candidates (C. Kleinn)

Since his integration into Georg-August-Universität Göttingen (2002) Dr. Kleinn has been and is supervising doctoral students, and PhD students in the PhD Programm "Forest Science and Forest Ecology". He was co-supervisor for 7 doctoral theses. He was member of the advisory committee and external examiner in PhD theses in Cameroon, England/Wales, Spain and Sweden.

Supervision of PhD Students since 2001 (completed):

- Fuchs HJ (PhD), final exam 2003 ("Methods for the assessment of forest trees using digital aerial photographs")
- Herrera-Fernandez B, Costa Rica (Freiburg, 2003), DAAD scholar ("Classification and modeling of trees outside forest in Central American landscapes by combining remotely sensed data and GIS")
    - First authorship: 1 original paper (Investigación Agraria: Sistemas de Recursos Forestales)
- Camargo Garcia JC, Colombia (2006), DAAD/GTZ scholar ("Growth and productivity of the bamboo species *Guadua angustifolia* Kunth in the coffee region of Colombia")
- Morales Hidalgo D, Costa Rica (2006), DAAD scholar ("Tree cover assessment with special focus on the relative position issue. Case studies in open areas in Costa Rica")
    - Second authorship: 1 original paper (European Journal of Forest Research)
- Fehrmann L (2006) DFG project ("Alternative techniques for single tree biomass estimation with special reference to the *k*-nearest neighbour (*k*-NN) technique")
    - First authorship: 2 original papers (Forest Ecology and Management, Canadian Journal of Forest Research)

Supervision of PhD Students since 2001 (on-going):

- Buschmann A (final exam in 2007), staff member ("Remote sensing based habitat suitability analysis for red kite *Milvus milvus* based on multivariate statistical techniques")
- Kinser A (final exam in 2007), in cooperation with Veterinary University, Hannover ("Habitat suitability analysis for hare *Lepus lepus* by spatial and multivariate analysis")
- Sprenger T (final exam in 2007) ("Improving the management of Hainan plantation forestry through satellite image interpretation and classification") DAAD support
- Yim J (final exam in 2007), DFG funded ("Research on an efficient forest assessment design as planning tool for sustainable forest management in South-Korea ")
- He C, China (final exam in 2008) ("Improving the information base for sustainable forest ecosystem management in Hainan Province, through mapping of forest types based on satellite remote sensing") DAAD support, cooperation with Hainan Forest Bureau, Hainan, China
- Riyahi HR, Iran (2004-2008), Government scholarhip of the Islamic Republic of Iran ("Forest cover monitoring in drylands of South Western Iran")
- Yang H, PR China (final exam in 2008), DFG funded ("Modified adaptive cluster sampling with conditional extension of field plots – development of response and estimation design")
- Villavicencio R, Bolivia (final exam in 2009) external PhD student in cooperation Fundación Kantuta Verde, Bolivia ("Information requirements for the sustainable management of the community forest resource in the highlands of Bolivia")

External examiner in PhD-exams/disputations:

- Wallerman J (April 2003), Swedish Agricultural University, Umeå, Sweden ("Remote sensing aided spatial prediction of forest stem volume").
- Diéguez Aranda U (Mai 2004), University of Santiago de Compostela, Spain („Modelo dinámico de crecimiento para las masas de *Pinus sylvestris* L. procedentes de repoblación en Galicia").

- Mbolo M (September 2004), Université de Yaounde, Cameroon ("Methodological approaches to air photo based forest cover type mapping in Djah National Park in Cameroon").
- Davies O (September 2006), University of Wales, Bangor ("3D Modelling of tree crowns based on by terrestrial photogrammetry").
- Barth A (November 2007, upcoming), Swedish Agricultural University, Umeå, Sweden ("Evaluating the marginal benefit of forest inventory based information in decision making").

Name: **KREISEL, WERNER**

Date of Birth: October 10th, 1944
Position: Professor (C4)
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Educational background:

1963-1969	Studies in Geography, History and Latin (Universität Freiburg/Br. and Wien)
1969	Wissenschaftliche Prüfung für das Lehramt an Gymnasien in Geography, History and Latin (Universität Freiburg/Br.).
1972	PhD (Dr. phil.) in Geography; Universität Freiburg/Br.
1979	Habilitation in Geography, RWTH Aachen (Aachen University of Technology).

Academic Appointments:

1969	Research Assistant Geographisches Institut RWTH Aachen (Aachen University of Technology).
1976	Senior Lecturer (Akademischer Rat) Geographisches Institut RWTH Aachen (Aachen University of Technology).
1976-1977	Fellowship of the American Council of Learned Societies
1977-1978	Habilitationsstipendium DFG
1986	Extracurricular Professor, RWTH Aachen (Aachen University of Technology).
1995	Professor at Geographisches Institut, Georg-August-Universität Göttingen.

Professional/academic positions:

- Since 2005 Dean of the Faculty of Geosciences and Geography at the Georg-August-Universität Göttingen
- German Association for Tourism Geography (Chairman 1998-2000)
- Member of the IGU (International Geographical Union) Working Group on Tourism and Leisure Research (since 2006)
- Working Group on Geography of Religion/ Arbeitskreis Religionsgeographie (Chairman 1994 - 1998)
- Association for Pacific Studies / Arbeitsgemeinschaft für Pazifische Studien - APSA (Chairman since 1986)

Key research expertise:

- Human impact on landscape, influence of history, economy and politics
- Ethnicity and its influence on cultural landscape
- Effects of population growth, migration and mobility
- Geography of leisure and tourism
- Tourism planning/ Regional planning/ Development of action and management plans
- Production of educational materials (environmental interpretation)

Major research funds:

- “Demographic change and its impact on land-use” within the broader frame of the Collaborative Research Centre DFG-SFB 552 “Stability of Rainforest Margins in Indonesia” (STORMA) - Total amount 2001-2006 271,700 €

Recent Project Partners (selection):

- German Federal Statistical Office (Statistisches Bundesamt)
- Bundesumweltministerium, Umweltbundesamt
- EUROPARC, Nationalparke Harz, Hochharz, Naturpark Hohes Venn-Eifel
- Government of the Autonomous Province of Bozen, Italy
- Centre for Environmental Interpretation Manchester/England
- Alpine Research Institute (Alpenforschungsinstitut)
- Regionalverband Südniedersachsen (Tourism Association of Lower Saxony)

Ten most important publications:

Schwarze S, Schippers B, Weber R, Faust H, Wardhono A, Zeller M, Kreisel W (2007) Forest Products and Household Incomes: Evidence from Rural Households Living in the Rainforest Margins of Central Sulawesi, In: Tscharntke T et al (eds) The Stability of Tropical Rainforest Margins, Linking Ecological, Economic and Social Constraints of Land Use Conservation. Springer Verlag Berlin, pp. 209-224.

Weber R, Faust H, Schippers B, Soetarto E, Mamar S, Kreisel W (2007) Migration and Ethnicity as Cultural Driving Forces of Land Use Change in the Rainforest Margin of Central Sulawesi, Indonesia. In: Tscharntke T et al. (eds) The Stability of Tropical Rainforest Margins, Linking Ecological, Economic and Social Constraints of Land Use Conservation. Springer Verlag Berlin, pp. 417-436.

Faust H, Kreisel W (2006) Humanökologie tropischer Regenwälder. Einführung zum Themenheft der Geographica Helvetica, Heft 4 2006: 234-237.

Kreisel W, Reeh T (2006) Tourismus auf den Inseln des Nördlichen Pazifiks. In: Geographische Rundschau Jahrgang 58, Heft 9, S.12-19.

Kreisel W, Dickmann F, Reeh T (2006) Touristische Räume – Konstrukte des Marketings. In: Leibniz-Institut für Länderkunde (Hrsg.): Nationalatlas Bundesrepublik Deutschland – Leben in Deutschland. Band 12, S.120-121. Spektrum Akademischer Verlag.

Kreisel W (2004) Geography of Leisure and Tourism Research in the German-Speaking World: Three Pillars to Progress. Tourism Geographies, Vol. 6, No.2, p.163-198.

Kreisel W (2004) Die Pazifische Inselwelt. – Eine Länderkunde. Bornträger-Verlag, Stuttgart

Kreisel W, Gee K, Dickmann F (2004) The Potential of internet-based techniques for heritage interpretation. In: Chrysanthou Y, Cain K, Silberman N, Niccolucci F (eds) VAST 2004: the 5th International Symposium on Virtual Reality, Archaeology and Intelligent Cultural Heritage, p. 67-72.

Kreisel W, Weber R, Faust H (2004) Historical Impacts on Use and Management of Natural Resources in the Rainforest Margins of Central Sulawesi. In: Gerold G, Fremerey M, Guhardja E (eds) Land Use, Nature Conservation and the Stability of Rainforest Margins in Southeast Asia, p.39-65.

Kreisel W, Weber R, Faust H (2004) Historical Impacts on Use and Management of Natural Resources in the Rainforest Margins of Central Sulawesi. In: Gerold G, Fremerey M, Guhardja E (eds) Land Use, Nature Conservation and the Stability of Rainforest Margins in Southeast Asia. Springer, Berlin, Heidelberg, New York, pp. 39-65.

Experience in supervision of doctoral candidates (W. Kreisel)

More than 25 years experience in the supervision of PhD students in the fields of human geography, development of cultural landscapes, tourism and leisure research, ethnic groups. Candidates under the following programmes: DAAD, Studienstiftung des Deutschen Volkes, Niedersächsische Graduiertenförderung.

Dissertations completed (since 2001):

- Thimm T (2001) Kulturlandschaftswandel in Französisch-Polynesien. Die Rolle der Maohi
  4 original papers/book chapters. Published in: Pazifik Forum. Subjects: cultural turn, acculturation, French Polynesia, tourism research. Ed. 1 vol.: Fragile Island Worlds
- Waibel M (2001) Die Altstadt Hanois: unter Berücksichtigung der Transformation des innerstädtischen 36-Gassen-Gebiets seit Beginn von Doi Moi
  32 original papers. Published in: Asien, Südostasien, Geographische Rundschau, Diercke Schulbuch, Trialog, International Quarterly for Asian Studies, Pazifik Forum, Pacific News, ZELTForum. Subjects: South East Asia, demographic change, urban development in Vietnam, developing countries. Editor of Pacific News and Pazifik Forum
- Hunecke H (2003) Produktionsfaktor Wissen – Untersuchung des Zusammenhangs zwischen Wissen und Standort von Unternehmen
  5 original papers/book chapters. Published in: Wissensmanagement, Wissen-Innovation-Netzwerke(Springer), Aachener Reihe Mensch und Technik. Subjects: local embedded knowledge, innovation in networks)
- Fittkau D (2004) Beeinflussung regionaler Kaufkraftströme durch den Autobahnlückenschluss der A 49 Kassel- Giessen
  1 original paper. Published in: ZELTForum. Subject: Geographical information Systems (GIS)
- Reeh T (2005) Der Wunsch nach Urlaubsreisen in Abhängigkeit von Lebens-zufriedenheit und Sensation Seeking: Entwicklung und Anwendung eines Modells der Urlaubsreisemotivation
  41 original papers. Published in: Umwelbundesamt (UBA-Texte), Österr. Ges. für Wirtschaftsraumforschung, Nationalatlas Bundesrepublik Deutschland, Geographische Rundschau, Pazifik Forum, ZELTForum, Trierer Geographische Studien, Integra, Bertelsmann Lexikothek-Verlag. Subjects: tourism and leisure research, regional development, Lower Saxony, landscape aesthetics, Pacific Islands
- Weber R (2005) Kulturlandschaftswandel in Zentral-Sulawesi: eine historisch-geographische Analyse der Lore- Lindu- Bergregenwaldregion
  9 original papers. Published in: Geographica Helvetica, Asian Journal of Social Science, Pazifik Forum, ZELTForum. Subjects: land use change in tropical areas, ethnicity and migration, use of forest products, tourism research
- Saure B (2006): Controlling in Non- Profit- Organisationen am Beispiel von Stadtmarketing- Organisationen
- Abdulkadir-Sunito M (ongoing) Demographic change in Central Sulawesi
- Gee K (ongoing) Landschaftsinterpretation als Planungsinstrument in Dithmarschen
- Gerber S (ongoing) Die Rolle des Internets in der Entwicklungszusammenarbeit (Beispiel Uganda)
- Klose H-G (ongoing) Standorte von IT-Technologie in der Gegenwart
- Marquardt D (ongoing) Die Bedeutung von NGOs bei der Tourismusplanung (Beispiel Laos)

Name: **KROTT, MAX**
Date of Birth: January 25th, 1955
Position: Professor (C4)
Address: Institut für Forstpolitik und Naturschutz
Universität Göttingen, Büsenweg 3
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Education and specialization:

1974-79	Studies Forestry (Agriculture University Vienna)
1979	Diploma in Forestry (Agriculture Unviersity Vienna)
1982	PhD in Forestry (Agriculture University of Vienna)
1981-83	Studies Political Science (Intitute for Advanced Studies, Vienna)
1983	Diploma in Political Science (Intitute for Advanced Studies, Vienna)
1988	Habilitation in Forest Policy and Regional Planning (Agriculture University Vienna)

Academic appointments:

1979	Assistant University Göttingen
1979-1981	Assistant Agricultural University Vienna
1983-1988	Assistant Agricultural University Vienna
1989-1994	Associate Professor in Forest Policy at the Agricultural University Vienna
since 1995	Full professorship (C4) in Forest Policy and Nature Conservation Policy, University of Göttingen

Other professional/academic positions:

1998-2003	Member of the Scientific Advisory Board of the European Forest Institute
since 1994	Scientific Controller of the Research programs “Cultural Landscape” and “proVision” of the Ministry of Science Austria
since 1995	Member of the IUFRO Board
since 2000	Founding Editor in Chief of “Forest Policy and Economics”, Elsevier.
since 2001	Chair of the Scientific Board of the Forestry Research Institute Baden-Württemberg

Key research expertise:

- Adminstrative policy making in Forestry in Western and Eastern Europe
- Adminstrative policy making in Nature Conservation in Western and Eastern Europe
- Political governance in integrated regional development
- Policy and management of inter- and transdisciplinary research

Major research funds since 2001 (selection):

- 2001 Protection and Use of Biodiversity, - Research Training Programme (DFG 2000 – 2005, 1 PhD Student) 66,180 €
- 2003 Development and quality of the global media discourse on forest (VW Foundation 2003- 2007: 184,800 €
- 2004 New Modes of Governance for Sustainable Forestry in Europe (EU 2004-2007: 168,213 € plus 8 partners in Europe)
- 2004 Interdisciplinary Environmental History – Research Training Programme (DFG 2004 - 2008, 2 PhD Students) 132,360 €
- 2001 Policy analysis of LEADER PLUS Program (BLE 2001-2004: 152,095 €)
- 2004 Policy analysis of Region active Program (BMVEL 2004 – 2006: 170,804 € plus five partners in Germany and Austria)

Other academic activities:

- Coordinator for Forest Policy Education within the joint EUROFORESTER program
- Peer reviewer for various funding agencies in Germany, Austria, USA, Hungary and Czech Republic
- Regular peer reviewer for various journals in the field of forestry and nature conservation policy
- Editor in Chief of “Forest Policy and Economics”, Elsevier

Ten most important publications:

Krott M, Hubo Ch (2007) Politiksektoren als Determinante von Umweltkonflikten am Beispiel invasiver gebietsfremder Arten. In: Feindt PH, Saretzki T (Hrg., 2007 im Druck): „Umwelt- und Technikkonflikte“, VS Verlag für Sozialwissenschaften.

Krott M, Hasanagas N (2006) Measuring Bridges Between Sectors: Causative Evaluation of Cross-Sectorality. Forest Policy and Economics 8 (2006) 555 – 563.

Krott M (2005) Forest Policy Analysis. Springer.

Ottitisch A, Krott M (2005) Urban Forest Policy and Planning. In: Konijnendijk CC, Nilsson K, Randrup TB, Schipperijn J (eds) Urban Forests and Trees. Springer (2005), pp. 117-148.

Krott M (2003) Catalyst for innovation in European forest policy sciences. Evaluation of the EFI Research Program 3: policy analysis. Forest Policy and Economics 5: 123-134.

Krott M (2003) Zur Optimierung forst-politikwissenschaftlicher Forschung. In: Forstarchiv 74:119-124.

Krott M (2002) Evaluation of transdisciplinary research. In: EOLSS Publishers Co. Ltd: Encyclopedia of Life Support Systems, Oxford (www.eolss.net.).

Krott M, Böcher M (2002) Strategieempfehlungen für Konsensverfahren in der Naturschutzpolitik. In: Erdmann K-H, Schell Ch (Bearb.): Naturschutz und gesellschaftliches Handeln, BfN Schriftenvertrieb, Landwirtschaftsverlag Gmbh, Bonn 169-182.

Krott M (2000) Scientific quality by controlling: The example of the interdisciplinary “Austrian research program on cultural landscapes”. In: Häberli R, Scholz RW, Bill A, Welti M (eds) Transdisciplinarity: Join Problem-Solving among Science, Technology and Society, Workbook 1, Haffmans Sachbuch Verlag, Zürich, 115-119.

Krott M (2000) Policies for Sustainable Forestry in Belarus, Russia und Ukraine. Publisher Brill, Leiden, Boston, Köln (2000) (co-authors: Tikkanen I, Petrov A, Tunytsya Y, Zheliba B, Sasse V, Rykounina I, Tunytsya T).

Experiences in the supervision of doctoral candidates (M. Krott)

M. Krott has over 15 years experience in the supervision of PhD students in the fields of forest policy, nature conservation policy and regional policy. In total 19 dissertations were successfully completed under his direct guidance. The PhD students are from Austria, Germany, Cameroon, Chile, Czech Repulik, Greece, Indonesia, South Korea, Serbia and other countries.

Participation in PhD-programs:
PhD program: “Forest Sciences and Forest Ecology” and two DFG Research Training Programs

PhD level courses:
- Management of research and knowledge (seminar)

PhDs in co-operation with industry:
Eight PhDs were undertaken in closed cooperation with different state forest administrations in Germany and in Indonesia

Supervision of PhD students since 2001:

- Bölsing S (2001) Planning policy in forestry and nature conservaiton
- Soekmadi R (2002) Regional development by National parks in Indonesia
- Sohns V (2002) Political networking of state forest administration
- Thwin S (2003) Myamar´s forest resources depletion and tropical deforestation in Asian Region
- Meskauskas E (2003) Policy of reforming the state forest service
- Sobze JM (2003) Analysis of implications of forest policy reform on community forestry in Cameroon: Case study Lomie
- Krumland D (2003) Presscoverage of forest topics in regional print media
- Loibl C (2004) Policy management of transdisciplinary research
- Hasanagas N (2004) Power factor typology through organizational and network analysis – using environmental policy networks as an illustration
- Nurrochmat D (2005) Policy of sustainable forestry by the example of concessions in Indonesia
- Lessner C (2005) New instruments for the extension of small private forest owners
- Giesen L (ongoing) Planning competence of regional governance
- Knap I (ongoing) Evolution of Forest Sciences in the 17th and 18th century and impact on forestry
- Ortner M (ongoing) Participation of the forest sector in the regional development program Leader plus
- Park M (ongoing) Making forest science public – Case study South Korea
- Real A (ongoing) The forest discourse in media and science on the national and international level: Case study Chile
- Schusser C (ongoing) Sustainable forestry by communities – Case study Namibia
- Stevanov M (ongoing) Reforming forest service toward democracy and market economcy – Case study Serbia
- Tränkner S (ongoing) Policy coordination in regional governance – case study Regionen aktiv Germany
- Vering K (ongoing) Integration of minorities as a task of urban forest policy

Name: **KÜES, URSULA**

Date of Birth: April 11th, 1958
Position: Professor (C4)
Address: Abt. Molekulare Holzbiotechnologie
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Fax: +49-551392705
Email, web: ukuees@gwdg.de; http://wwwuser.gwdg.de/~uffb/mhb/welcome.htm

Education and specialization:

Studies in Biology (Univ. Bochum)

1983	Diploma in Biology (main focus Botany)
1988	PhD in Microbiology, Tech. Univ. Berlin
1989	Habilitation in Molecular Microbiology and Genetics, ETH Zurich

Academic appointments:

1988-1990	Postdoc Free Univ. of Berlin (Bacterial Genetics)
1990-1991	Postdoc QMW College, Univ. of London (Fungal Genetics)
1991	Part-time lecturer Birkbeck College, Univ. of London (Microbiology)
1991-1993	Postdoc Dept. of Plant Sciences, Univ. of Oxford (Fungal Genetics)
1993-1994	Glasstone Research Fellow, Univ. of Oxford (Fungal Genetics)
1994-2001	Groupleader Inst. f. Microbiology, ETH Zurich (Mycology, Genetics)
since 2001	Full professorship (C4) in Molecular Wood Biotechnology, Uni. of Göttingen (DBU Stiftungsprofessur)

Awards and honours:

1993	SERC Merit Award (Science and Engineering Research Council, UK)
1994	Glasstone Research Fellowship, Univ. of Oxford
1999	Prize for excellent teaching, Inst. f. Microbiology, ETH Zurich

Other professional/academic positions:

since 1999	Member of the Editorial Board of Appl. Microbiol. Biotechnol.
since 2001/06	Member of the Editorial Board/Associate Editor of Current Genetics
2002-2005	Founding member of the Directorial Board of the NHN (Competence Net for Sustainable Wood Utilization)
since 2004	Elected speaker of the Section Experimental Mycology of the VAAM
2004-2005	Volume editor of the Mycota book series (Vol. I, 2nd Ed.)
since 2005	Member of the Advisory Council of the NHN
2006	External advisor to the Swedish Research Council for Scientific Excellence Centres
since 2006	Member of the Editorial Board of Fungal Genet. Biol.
since 2007	International Editor of Appl. Microbiol. Biotechnol.

Key research expertise:

- White rot fungi and saprophytes (wood and litter degradation, fungal enzymes, laccases)
- Enzymatic wood modification and Wood biotechnology (enzymatic wood modification, biotechnological approaches in wood composite production)
- Growth and development of higher fungi (basidiomycetes)
- Molecular and classical microbial genetics (bacteria, fungi)
- Evolutionary genetics and fungal proteomics (functional diversification of fungal proteins, secretome)

Major research funds since 2001 (selection):

- New chances for wood composites – Development of innovative formaldehyde-free wood composites (BMVEL 2006-2009; 335,000 €)
- NHN-Network project: Environmentally friendly wood and wood composite products from new wood sources (BMBF 2005-2009;TP6: 137,610 €; TP8: 367,277 €, shared with A. Polle)
- Usage of mediators in enzymatic activation of fiber bonding forces in the production of enzyme-bond, binder-free wood composites (BMVEL 2005-2008; 235,574 €)
- Cell wall associated oxidizing enzymes in the lignin degrading white-rotting mushroom Pleurotus ostreatus - Coordinator (Niedersächs.-Israel. Gemeinschaftsvorhaben, MWK-VW Vorab 2006-2008; 112,500 €)
- Evoltree – Research on Fungal-Tree Interactions (European Community; 2006-2008; Interdisciplinary project with R. Finkeldey, A. Polle, S. Schütz)
- Studies on Heterobasidion annosum-degraded spruce wood for applications in the wood industry (FNR 2004-2007; 393,139 €; shared with A. Polle)
- Establishing a Competence Net for Sustainable Wood Utilization – Coordinator (EFRE-project, 2002-2005; 1,300,000 €, shared with A. Polle)
- WOODIBIOTEC: Applied Environmental research in wood product biotechnologies (Marie-Curie Training Centre, 2001-2005)

Other academic activities:

- Peer reviewer for various funding agencies in Germany, Switzerland, Austria, Sweden, Israel, the Netherlands, the EU and the US
- Regular peer reviewer for various journals in the field of microbiology, biotechnology, molecular biology, genetics and mycology
- Equal opportunities officer (since 2001) and member of the Senate Commission for Equal Opportunities, Univ. of Göttingen (2005-2007)

Ten most important publications:

Blödner C, Majcherczyk A, Kües U, Polle A (2007) Mild drought stress that does not provoke ecophysiological responses in Norway spruce (*Picea abies* [Karst.] L.) affects the needle proteome. Tree Physiol., in press.

Svobodova K, Majcherczyk A, Novotny C, Kües U (2007) Implication of mycelium-associated laccase from *Irpex lacteus* in the decolorization of synthetic dyes. Bioresource Technology, in press.

Hoegger PJ, Tucker J, James TY, Kilaru S, Hoffmann M, Vilgalys R, Kües U (2006) Phylogenetic comparison of laccase and related protein sequences. FEBS Journal 273: 2308-2326.

James TY, Srivilai P, Kües U, Vilgalys R (2006) Evolution of the bipolar mating system of the mushroom *Coprinellus disseminatus* from its tetrapolar ancestors involves loss of mating-type-specific pheromone receptor function. Genetics 172: 1877-1891.

Kilaru S, Hoegger PJ, Kües U (2006) The laccase multi-gene familiy in *Coprinopsis cinerea* has seventeen different members that divide into two distinct subfamilies. Curr. Genet. 50: 45-60.

Kilaru S, Hoegger PJ, Majcherczyk A, Burns C, Shishido K, Bailey A, Foster DG, Kües U (2006) Expression of laccase gene *lcc1* in *Coprinopsis cinerea* under control of various basidiomycetous promoters. Appl. Microbiol. Biotechnol. 71: 200-210.

Liu Y, Srivilai P, Loos S, Aebi M, Kües U (2006) An essential gene for fruiting body initiation in the basidiomycete *Coprinopsis cinerea* is homologous to bacterial cyclopropane fatty acid synthase genes. Genetics 172: 873-884.

Bertossa RC, Kües U, Aebi M, Künzler M (2004) Promoter analysis of *cgl2*, a galectin encoding gene transcribed during fruiting body formation in *Coprinopsis cinerea* (*Coprinus cinereus*). Fungal Genet. Biol. 41: 1120-1131.

Mai C, Kües U, Militz H (2004) Biotechnology in the wood industry. Appl. Microbiol. Biotechnol. 63: 477-494.

Walser PJ, Haebel PW, Künzler M, Sargent D, Kües U, Aebi M, Ban N (2004) Structure and function of the fungal galectin Cgl2. Structure 12: 689-702.

Experience in the supervision of doctoral candidates (U. Kües)

U. Kües has over ten year experiences in the supervision of PhD students in the fields of molecular biology, genetics, biotechnology and mycology. A total of eleven dissertations (ten since 2001, one Marie-Curie-visiting student) were successfully completed under her direct guidance.

Participation in PhD-programs:
PhD program “Wood Biology and Technology”
PhD program “Forest Sciences and Forest Ecology”

Six PhD students of U. Kües study currently in the program “Wood Biology and Technology” and five PhD students completed their studies in this program. In addition, U. Kües serves currently in the thesis committees of six PhD students of other institutes (Forest Zoology, Forest Genetics, Wood Biology and Wood Technology) and participated in the past in the thesis committees of five PhD students from the Institute of Wood Biology and Wood Technology.

PhD level courses:
Wood Science and Technology (seminar)
Forest Botany (seminar)
Biotechnology of fungi and wood composites (laboratory practical)
Biotechnology of fungi – DNA and proteins (laboratory practical)
Physiology and biotechnology of trees and fungi (lectures with laboratory courses)
Methods in molecular biology, biochemistry and microbiology (laboratory practical)

International PhD student exchange:
In 2003/2004, a PhD student from Czechia (Prague) worked one year as a Marie-Curie-Fellow in the lab of U. Kües and in summer term 2006 a PhD student from Czechia (Brno) financed by Erasmus. Currently, a PhD student from Sweden is guest student in the laboratory with a PhD exchange grand awarded by the University of Uppsala. In frame of a Lower Saxony-Israelian research project shared with Prof. Y. Hadar (Hebrew University, Revohot, Israel), PhD student exchanges will take place from Israel to Germany and from Germany to Israel.

Thesis committees abroad:
U. Kües has served as an external referee for a PhD student at the Indian Institute of Technology, Bombay. On voluntary advisory level, U. Kües collaborated directly with a PhD student at Duke University (Durham, NC) throughout his work including designing the thesis project. First experiences with a curricular PhD system were obtained from supervising two PhD students at the ETH Zurich whilst three others followed a classical PhD route.

PhDs in co-operation with industry:
Currently, two PhD projects are undertaken in research with industrial collaboration. Five other PhDs were performed in connection with the NHN.

Supervision of PhD students since 2001:

- Bottoli APF (2001) Metabolic and environmental control of development in *Coprinus cinereus*
    - First authorship: 1 original paper (J Microbiol Meth)
- Liu Y (2001) Fruiting body initiation in the basidiomycete *Coprinus cinereus*
    - First authorship: 2 original paper (Genetics, Fungal Genet Newsl)
- Bertossa RF (2004) Transcriptional regulation during fruiting body formation in the basidiomycete *Coprinopsis cinerea*: promoter analysis of the cgl2 gene encoding a fruiting body-specific galectin
    - First authorship: 1 original paper (Fungal Genet Biol)
- Walser PJ (2004) Structure and functional analysis of the fungal galectin Cgl2

    - First authorship: 3 original paper (Structure, Fungal Genet Biol, Fungal Genet Newsl), 2 reviews (Recent Res Dev Microbiol, IRL Press Practical Approach Series)
    - Corresponding author: 1 original paper (Fungal Genet Newsl)
- Slobodava K (2005) The implication of lignolytic enzymes in the decolorization of synthetic dyes by the white rot fungus *Irpex lacteus* (1 year Marie-Curie-visiting-student)
    - First authorship and corresponding author: 2 original paper (Bioresource Technol, Acta Facultas Rereum Naturalium Universitatis Ostraviensis)
- Dwivedi RC (2006) Extracellular proteins from lignocellulose degrading Basidiomycetes: Redox enzymes from *Trametes versicolor* and *Coprinopsis cinerea*
    - First authorship: 1 book chapter
- Kilaru S (2006) Identification of multi-copper oxidase gene families: Overexpression and characterization of *Coprinopsis cinerea* laccases for application in biotechnology
    - First authorship: 3 original paper (Curr Genet, Appl Microbiol Biotechnol, Fungal Genet Newsl), 1 book chapter
    - Corresponding author: 2 book chapters
    - Curr Genet paper since five month listed as most viewed original paper of the journal within 90 days periods (weekly update)
- Pemmasani JK (2006) Stress response to wood and wood-related volatiles using the yeast *Saccharomyces cerevisiae* as a model system for biological monitoring
    - First authorship: 1 book chapter
- Srivilai P (2006) Molecular analysis of genes acting in fruiting body development in basidiomycetes
    - First authorship: 2 book chapters
    - Data contributed as second author to a paper published in cooperation with an American group in the journal Genetics caused its entry by the Faculty of 1000 as highly important paper
- Velagapudi R (2006) Extracellular matrix proteins in growth and fruiting body development of straw and wood degrading Basidiomycetes
    - First authorship: 1 book chapter
- Chaisaena W (ongoing) Characterisation of mutants of *Coprinopsis cinerea* with altered fruiting body morphologies
- Cherdchim B (ongoing) Modification of wood by laccases
- Fragner D (ongoing) Cell wall-bound enzymes in Pleurotus ostreatus
- Malik I (ongoing) Analysis of the persistence of new wood composites against molds, stain fungi and decay fungi
- Navarro-Gonzalez M (ongoing) Redox-enzymes in growth and development of coprinoid mushrooms
    - First authorship and corresponding author: 1 book chapter
- Peddireddi S (ongoing) The role of fungal hydrophobins in wood colonisation and degradation
    - First authorship and corresponding author: 1 book chapter
- Rühl M (ongoing) Recombinant enzyme production in *Coprinopsis cinerea*
    - First authorship: 2 book chapters

Name: **LEUSCHNER, CHRISTOPH**

Date of Birth: December 21st, 1956
Position: Professor (W3)
Address: Abt. Ökologie und Ökosystemforschung
Albrecht-von-Haller-Institut für Pflanzenwissenschaften
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Phone: +49-551395718
Fax: +49-551395701
Email, web: cleusch@uni-Göttingen.de, http://www.plantecology.uni-Göttingen.de/

Education and specialization:

1977-1982	Studies in Biology and Geography (Univ. Freiburg/Br., Univ. Göttingen)
1982	Diploma in Biology (main focus Botany)
1983:	Diploma in Geography (main focus Physical Geography)
1983/1984:	Studies in Water Resources Research (Univ. of Hannover)
1986	PhD in Biology (Plant Ecology), Univ. of Göttingen (supervision: H. Ellenberg)
1994	Habilitation in Botany, Univ. of Göttingen

Academic Appointments:

1987-1988	Postdoc Univ. of Kiel/Biol. Anst. Helgoland (List/Sylt)
1989, 1992	Visiting scientist at the Univ. of Hawaii and Univ. de la Réunion (France)
1989-1994	Postdoc Univ. of Göttingen
1996-2000	Full professorship (C4) in Ecology, Univ. of Kassel
since 2000	Full professorship (C4/W3) in Plant Ecology, Univ. of Göttingen
1998	Call to Chair in Geobotany (C4), Univ. of Halle
2000	Call to Chair in Botany (C4), Univ. of Greifswald
2005	Call to Chair in Ecosystem Science (W3), Univ. of Münster

Other professional/academic positions:

since 1996	Co-Editor Journal of Vegetation Science Member of Editorial Boards: Basic & Appl. Ecol., Eur. J. For. Res., Phytocoenologia and others
since 2002	Deputy Speaker of SFB 552 (STORMA)
since 2005	Speaker of GRK 1086
since 2000	Director of the New Botanical Garden, Göttingen
since 2002	Speaker of the Göttingen Centre for Biodiversity and Ecology
since 2006	Member of the Curatorium, Michael-Otto-Stiftung

Key research expertise:

- Ecophysiology of temperate and tropical trees (carbon, water and nutrient regimes)
- Ecology of tree root systems
- Water and nutrient fluxes in forest ecosystems
- Ecology of the alpine timberline
- Conservation biology in agrarian ecosystems
- Vegetation ecology of Central Europe (synthesis)

Major research funds since 2001 (selection):

- Bedeutung der Biodiversität für Stoffkreisläufe und biotische Interaktionen in temperaten Laubwäldern - Graduiertenkolleg 1086 (DFG 2005-2009; 1,377,397 €)
- Stability of Rainforest Margins in Indonesia – SFB 552 (DFG 2002-2009; 1,082,330 €)
- Pflanzliche Diversität in Tieflandregenwäldern Nordostecuadors (BMBF 2003-2008; 917,187 €)

- Funktionalität in einem tropischen Bergregenwald Südecuadors – 2 Teilprojekte innerhalb der Forschergruppen 402 u. 816 (DFG 2002-2007; 422,774 €)
- Biodiversität in der Agrarlandschaft (Rudolf und Helene Glaser-Stiftung im Stifterverband für die Deutsche Wissenschaft 2006-2008; 174,000 €)
- Vitalität und Umsatz der Feinwurzeln in Fichtenbeständen, Teilprojekt innerhalb der Forschergruppe „Dynamik von Bodenprozessen“ (DFG 2005-2008; 149,776 €)
- Virtuelles Institut Makroökologie (Helmholtz-Gemeinschaft Deutscher Forschungszentren e.V. 2004-2007; 147,000 €)
- Regulation der Wurzelwasseraufnahme von Waldbäumen (DFG 2002-2004; 84,437 €)

Other academic activities:
- Peer reviewer for various funding agencies in Germany, Austria, UK, USA, Canada and the EU
- Regular peer reviewer for various journals in the field of plant ecology, tree ecophysiology, vegetation ecology and tropical ecology

Ten most important publications:

Ellenberg H, Leuschner Ch (2007) Vegetation Mitteleuropas mit den Alpen. 6th. completely revised ed. Ulmer, Stuttgart. ca. 1300 p. (Ende 2007).

Meier IC, Leuschner Ch, Hertel D (2005) Nutrient return with leaf litter fall in *Fagus sylvatica* forests across a soil fertility gradient. Plant Ecol. 177: 99-112.

Schipka F, Heimann J, Leuschner Ch (2005) Regional variation in canopy transpiration of Central European beech forests. Oecologia 143: 260-270.

Aspelmeier S, Leuschner Ch (2004) Genotypic variation in drought response of silver birch (Betula pendula Roth): leaf water status and carbon gain. Tree Physiol. 24: 517-528.

Leuschner Ch, Coners H, Icke R (2004) *In situ* measurement of fine root water absorption in three temperate tree species. Species differences and differential activity of superficial and deep reaching roots. Tree Physiol. 24:1359-1367.

Leuschner Ch, Hertel D, Muhs A, Schmid I, Koch O (2004) Stand fine root biomass and fine root morphology in old-growth beech forests in response to rainfall height and soil acidity. Plant and Soil 258: 43-56.

Schulze CH, Waltert M, Kessler PJA, Pitopang R, Shahabuddin, Veddeler D, Mühlenberg M, Gradstein SR, Leuschner Ch, Steffan-Dewenter I, Tscharntke T (2004) Biodiversity indicator groups of tropical land-use systems: comparing plants, birds and insects. Ecol. Appl. 14: 1321-1333.

Coners H, Leuschner Ch (2002) Water absorption by tree fine roots measured in situ with miniature sap flow gauges. Funct. Ecol. 16: 696-703.

Leuschner Ch, Hertel D, Coners H, Büttner V (2001) Root competition between beech and oak: a hypothesis. Oecologia 126: 276-284.

Leuschner Ch (2000) Are high elevations in tropical mountains arid environments for plants? Ecology 81: 1425-1436.

Experience in the supervision of doctoral candidates (Ch. Leuschner)

Ch. Leuschner has over twelve years of experience in the supervision of PhD students in the fields of plant ecology, vegetation ecology and tropical ecology. More than 15 dissertations were successfully completed since 2001 under his guidance; another 13 PhD project are currently under way.

Participation in PhD-programs:
PhD program "Biology" (Dr. rer. nat.)
PhD program "Biodiversity and Ecology" (PhD)
PhD program "Forest Science and Forest Ecology"

PhD level courses:
Current Problems in Plant Ecology and Conservation Biology (seminar)
Modern Topics in Biodiversity and Ecology (lectures, colloquia)
Trends in Modern Ecological Research (seminar)
Design of Ecological Experiments and Presentation Techniques (practical course)

International PhD student exchange:
PhD student exchanges have been taking place with Israel (Beer Sheba), Indonesia (IPB Bogor) and the US (Univ. of Pennsylvania).

Thesis committees abroad:
Ch. Leuschner has been a member of the thesis committees in dissertations at ETH Zürich, Univ. of Bern and several universities in Germany.

Supervision of PhD students since 2001 (completed dissertations):

- Aspelmeier S (2001) Genotypic variation in drought response of silver birch (*Betula pendula* Roth)
    - First authorship: 2 original papers (Tree Physiol, Trees)
- Coners H (2001) Wasseraufnahme und artspezifische hydraulische Eigenschaften der Feinwurzeln von Buche, Eiche und Fichte: *In situ*-Messungen an Altbäumen
    - First authorship: 2 original papers (Funct Ecol, Basic Appl Ecol)
- Hagemeier M (2001) Funktionale Kronenarchitektur mitteleuropäischer Baumarten am Beispiel von Hängebirke, Waldkiefer, Traubeneiche, Hainbuche, Winterlinde und Rotbuche
    - First authorship: 1 original paper (Agric For Meterol)
- Hesse V (2001) Epiphytic lichen diversity and its dependence on chemical site factors in differently elevated dieback-affected spruce stands of the Harz Mountains
- Scheidel U (2001) Die Bedeutung der Herbivorie für die Verbreitung montaner Compositen im Harz
    - First authorship: 4 original papers (2 x J Ecol, Oecologia, Acta Oecol)
- Foetzki A (2002) Wasserhaushalt und Wassernutzungseffizienz von vier perennierenden Pflanzenarten im Vorland einer zentralasiatischen Flussoase
    - First authorship: 1 original paper (Plant Ecol)
- Gieger T (2002) Auswirkungen von Trockenheit und Entlaubung auf den Wasserhaushalt von Stiel- und Traubeneiche
    - First authorship: 2 original papers (Trees, Flora)
- Köhler L (2002) Die Bedeutung der Epiphyten im ökosystemaren Wasser- und Nährstoffumsatz verschiedener Altersstadien eines Bergregenwaldes in Costa Rica
    - First authorship: 2 original papers (Flora)
- Wübbenhorst D (2002) Gefährdungsursachen des Rebhuhns Perdix perdix in Mitteleuropa: Vergleichende Untersuchung von Lebensräumen mit unterschiedlicher Siedlungsdichte des Rebhuhns unter besonderer Berücksichtigung der Nisthabitate
    - First authorship: 2 original papers (Pol J Ecol, Arch Nat Landschforsch)
- Schipka F (2003) Blattwasserzustand und Wasserumsatz von vier Buchenwäldern entlang eines Niederschlagsgradienten in Mitteldeutschland

    - First authorship: 1 original paper (Oecologia)
- Schmitt S (2003) Genetische Vielfalt und Vernetzung verschiedener Teilpopulationen von *Corylus avellana* L. und *Prunus spinosa* L. an Wald- und Wegrändern des Sollings
- Steverding M (2003) Spechte als ökologische Indikatoren in Natur- und Wirtschaftswäldern im Bialowieza-Wald (Ostpolen)
    - First authorship: 1 original paper (Forstw Cbl)
- Bohman K (2004) Functional and morphological diversity of trees in different land use types of the rainforest margin region of Sulawesi, Indonesien
    - First authorship: 1 original paper (Ecotropica)
- Erfmeier A (2004) Ursachen des Invasionserfolges von *Rhododendron ponticum* L. auf den Britischen Inseln: Einfluss von Habitat und Genotyp
    - First authorship: 2 original papers (Ecography, Flora)
- Kluth C (2004) Zentrale und periphere Populationen von Hornungia petraea: Biodiversität und Demographie auf unterschiedlichen raum-zeitlichen Skalenebenen
    - First authorship: 3 original papers (J Biogeogr, J Ecol, Oecologia)
- Korn S (2004) Experimentelle Untersuchung der Wasseraufnahme und der hydraulischen Eigenschaften des Wurzelsystems von sechs heimischen Baumarten
- Strobel J (2004) Die Atmung der verholzten Organe von Altbuchen (*Fagus sylvatica* L.) in einem Kalk- und einem Sauerhumusbuchenwald
- Fühner C (2005) Das Auftreten acidophiler/calcifuger Pflanzenarten in Kalk-Halbtrockenrasen: Die Calcicolen/Calcifugen-Problematik unter edaphischen, autökologischen und synökologischen Gesichtspunkten
- Burk D (2006) Physiologische, anatomische und chemische Aspekte der Regulation der Wurzelwasseraufnahme bei Rotbuche, Kiefer und Birke auf zwei unterschiedlich wasserversorgten Standorten
- Frech A (2006) Walddynamik in Mischwäldern des Nationalparks Hainich: Untersuchung der Mechanismen und Prognose der Waldentwicklung
    - First authorship: 1 original paper (Eur J For Res)
- Röderstein M (2006) Struktur und Dynamik des Feinwurzelsystems von tropischen Bergwäldern in Abhängigkeit von der Meereshöhe in Südecuador
    - First authorship: 1 original paper (J Trop Ecol)
- Dietz J (2007) Rainfall partitioning in differently used montane rainforests of Central Sulawesi, Indonesia
    - First authorship: 3 original papers (Flora, For Ecol Manage, Ecotropica, partly under review)
- Harteveld M (2007) Effects of forest disturbance on the structure and dynamics of the fine root system of a tropical moist forest (Sulawesi, Indonesia)
    - First authorship: 3 original papers (J Trop Ecol, Biotropica, Agrofor Syst, partly under review)
- Meier IC (2007) Aboveground and belowground drought response of European beech
    - First authorship: 3 original papers (Plant Ecol, Global Change Biol, Ecosystems, partly under review)

12 other PhD projects are currently under way.

Name: **MARGGRAF, RAINER**

Date of Birth: September 29th, 1949
Position: Professor (C3)
Address: Arbeitsbereich Umwelt- und Ressourcenökonomie
Department für Agrarökonomie und Rurale Entwicklung
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37073 Göttingen, Germany
Phone: +49-551 394829
Fax: +49-551 394812
Email, web: rmarggr@uni-Göttingen.de, www.gwdg.de/~uaao

Education and specialization:

1980	Economist (Dipl.-Volkswirt), University of Heidelberg, Germany, Faculty of Economics
1985	Dr. rer. pol., University of Heidelberg, Germany
1991	Post-doctoral thesis (Habilitation), University of Heidelberg, Germany

Academic appointments:

1980	Research Associate and Lecturer, University of Heidelberg, Germany, Faculty of Economics
1981-1991	Senior Lecturer, University of Heidelberg, Germany, Faculty of Economics
1992	Post-Doctoral Research Fellow, University of Heidelberg, Germany, Faculty of Economics
1993	Professor of the Department of Transport Economics, Faculty of Economics, University of Hamburg, Germany
since Oct. 1994	Professor of the Department of Agricultural Economics and Rural Development, University of Göttingen, Germany

Other professional/academic positions:

since 2001	Research Centre for Agrarian and Economic Development, University of Heidelberg
since 2002	Co-chair of the Research Centre for Agriculture and the Environment, University of Göttingen
since 2003	Member of the Scientific Expert Group of the BMVEL for the on-farm-management of plant genetic resources
since 2004	Member of the National Expert Group of the BMU for the Convention of Biological Diversity
since 2006	Member of the Expert Group of the UBA for Soil Protection
since 2002	Dean of the Faculty of Agriculture at Göttingen University

Key research expertise:

- Benefit-Cost-Analysis
- Economic Evaluation of Environmental Goods
- Economic Assessement of Agri-environmental Policy

Major research funds since 2001 (selection):

- Graduiertenkolleg “Wertschätzung und Erhaltung von Biodiversität” (DFG 2000-2004; 262,695 €)
- Theorie und Praxis staatlich regulierter Ressourcennutzung im Übergang zur Moderne (Einzelprojekt im Graduiertenkolleg „Interdisziplinäre Umweltgeschichte – Naturale Umwelt und Gesellschaftliches Handeln in Mitteleuropa“, DFG 2004-2007; 102,821 €)
- „Ökonomische Wertschätzung von Ökosystem-Dienstleistungen und Biodiversität“ (Einzelprojekt im Graduiertenkolleg „Die Bedeutung der Biodiversität für Stoffkreisläufe und biotische Interaktion in temperaten Laubwäldern“ (DFG 2005-2009; 105,324 €)

- SFB 552 „Stability of Rainforest Margins in Indonesia" – STORMA Project A5 "Biological diversity at the rainforest margin as an economic good" (DFG 2003-2009; 325,345 €)
- BIOPLEX – Biodiversität und räumliche Komplexität in Agrarlandschaften (BMBF/BIOLOG 2000-2009; 1,100,100 €)
- BIOKONCHIL: Bewertung biologischer Vielfalt unter der Perspektive des Ökosystemansatzes der Biodiversitätskonvention, am Beispiel der südchilenischen Insel Navarino (Feuerland, Kap Hoorn Archipel) (BMBF 2003-2006; 50,047 €)
- Spatially Explicit and Institutionally Extended Valuation of Ecosystem Services (Einzelprojekt in der Forschergruppe FOR 402 Biodiversity and Sustainable Management of a Megadiverse Mountain Ecosystem in South Ecuador (DFG 2007-2010; 170,321 €)

Other academic activities:

- Peer reviewer for various funding agencies in Germany, Switzerland, Austria
- Regular peer reviewer for various journals in the field of agricultural and environmental economics

Ten most important publications:

Barkmann J, de Vries K, Dietrich N, Gerold G, Glenk K, Keil A, Leemhuis C, Marggraf R (*accepted*) Confronting unfamiliarity with ecosystem functions: The case for an ecosystem service approach to environmental valuation with stated preference methods. Ecological Economics.

Steffan-Dewenter I, Kessler M, Barkmann J, Bos M, Buchori D, Erasmi S, Faust H, Gerold G, Glenk K, Gradstein SR, Guhardja E, Harteveld M, Hertel D, Höhn P, Kappas M, Köhler S, Leuschner C, Maertens M, Marggraf R, Migge-Kleian S, Mogea J, Pitopang R, Schaefer M, Schwarze S, Sporn SG, Steingrebe A, Tjitrosoedirdjo SS, Tjitrosoemito S, Twele A, Weber R, Woltmann L, Zeller M, Tscharntke T (2007) Tradeoffs between income, biodiversity, and ecosystem functioning during tropical rainforest conversion and agroforestry intensification. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 104(12): 4973–4978.

Marggraf R (2005) Global Conservation of Biodiversity from an Economic Point of View. In: M. Markussen et al. (ed): Valuation and Conservation of Biodiversity – Interdisciplinary View on Biological Diversity, Springer Verlag, Heidelberg u.a.O.

Marggraf R (2005) Family Decisions Affecting the Formation of Human Capital. In: Ahrens H (ed): Development Cooperation – Evaluation and New Approaches. Schriften des Vereins für Socialpolitik, Duncker & Humblot, Berlin, 133-140.

Barkmann J, Marggraf R (2004) The Long-Term Protection of Biological Diversity – Lessons from Market Ethics. In: Poesis & Praxis (3): 3-21.

Fischer A, Marggraf R (2003) On the Equivalence of Market Valuation and Economic Valuation of Nature. In: Kissling M, Schmitz K, Schmitz PM, Wronka T (eds): Pricing Environmental Services of Agriculture, Wissenschaftsverlag Vauk, Kiel, 45-72.

Gerowitt B, Isselstein J, Marggraf R (2003) Rewards for Ecological Goods – Requirements and Perspectives for Agricultural Land Use. In: Agriculture, Ecosystems and Environment 98: 541-547.

Marggraf R (2003) Comparative assessment of agri-environmental programmes in Federal States of Germany. In: Agriculture, Ecosystems and Environment 98: 507-516.

Marggraf R (2002) The Protection of Biodiversity as a Global Common Good. In: Fernandez M (ed): Economically and Socially Sustainable Development, World Bank Publication, Washington, D.C..

Marggraf R (2001) How to Design Biological Corridors for Sustainable Development. Policy Paper, UNDP, New York.

Experience in the supervision of doctoral candidates (R. Marggraf)

R. Marggraf has over ten year experiences in the field supervision of PhD students in the fields of agricultural and environmental economics. A total of sixteen dissertations were successfully completed under his direct guidance.

Participation in PhD-programs:
PhD program **IPAG** and PhD program **PAG**

PhD level courses:
Welfare Economics

International PhD student exchange:
Under R. Marggraf's supervision 2 students of Chile, 1 of Indonesia and 1 of Korea completed their dissertations successfully. 1 student of China, 1 of Cameroon, 1 of Nigeria, 1 of Guinea-Bissau, 1 of Columbia and 1 of Israel are at present working under his guidance.

Supervision of PhD students since 2001: (completed dissertations)

- Villalobos P (2001) Kontingente Bewertung von Tierhaltungsverfahren als Beitrag zu einer nachhaltigen Umweltpolitik Chiles
    - First author: monography
- Bräuer I (2002) Artenschutz aus volkswirtschaftlicher Sicht. Die Nutzen-Kosten-Analyse als Entscheidungshilfe
    - First author: 6 book chapters, 2 original papers (Agriculture, Ecosystems & Environment, Treffp Biol Vielfalt)
    - Contributing author: 1 book chapter, 1 original paper (Z f Agrarpol Landwirtsch)
- Putri E (2002) Integration von Kontingenter Bewertungsmethode und partizipativen Ansätzen am Beispiel des Gunung Gede Pangrango Nationalparks in Indonesien
    - First author: monography
- Bergmann H (2003) Der Einfluss von Informationen in Kontingenten Bewertungsstudien – Nutzen-Kosten-Überlegungen anhand der Agrarumweltprogramme
    - First author: 1 orginal paper (book chapter), 1 monography
- Fischer A (2003) Decision behaviour and information processing in contingent valuation surveys – an economic psychological analysis of impacts on environmental valuation
    - First author: 3 book chapters, 2 original papers (Agrarwirtschaft, Ecological Economics), 1 monography
- Menzel S (2003) Der ökonomische Wert der Erhaltung von Biodiversität – Die Herausforderung seiner empirischen Erfassung zur Abschätzung internationaler Transferzahlungen
    - First author: 1 book chapter, 1 monography, 1 original paper (Umweltpsychologie)
    - Contributing author: 1 book chapter
- Hespelt SK (2005) Regionalisierung von Agrarumweltmaßnahmen - Dargestellt am Beispiel der transdisziplinären Entwicklung eines ergebnisorientierten, regional verankerten für ökologische Leistungen der Landwirtschaft unter besonderer Berücksichtigung eines regionalen Gremiums
    - First Author: 1 book chapter, 1 monography, 1 original paper (Treffp Biol Vielfalt)
    - Contributing author: 2 book chapters, 3 original papers (agrarspectrum, Ländlicher Raum, Weed Research)
- Cerda CL (2006) Valuing biological diversity in Navarino Island, Cape Horn Archipelago, Chile – a choice experiment approach
    - First author: 1 original paper (Treffp Biol Vielfalt)
    - Contributing author: 1 original paper (Umweltpsychologie)

- Glenk K (2006) Economic Valuation of Biological Diversity – Exploring Non-market Perspectives in the Vicinity of the Lore-Lindu National Park in Indonesia's Central Sulawesi
    - First author: 1 book chapter
    - Contributing author: 1 book chapter, 2 original papers (PNAS, Ecological Economics)
- Groth M (2006) Ausschreibung zur Honorierung von Umweltleistungen – Eine praxisbezogene Analyse am Beispiel ökologischer Leistungen der Landwirtschaft
    - First author: 4 original papers (Z f Natursch Landschaftspfl, Z f Wirtschaftspol, Z f Umweltpol Umweltr, Natur + Landschaft), 1 monography
- Rüffer C (2006) Merit goods determined by society value judgements – Political implications for public participation
    - First author: 1 original paper (Treffp Biol Vielfalt), 1 book chapter, 1 monography
    - Contributing author: 1 book chapter
- Freese J (2007) Economic contributions for activating human behaviour for the solving environmental issues
    - First author: 4 book contributions, 1 monography, 1 original paper (Treffp Biol Vielfalt)
    - Contributing author: 1 book chapter, 1 orginal paper (Natur + Landschaft)

Supervision of PhD students (ongoing dissertations; selection):

- Buchs, Ann Kathrin (2004) Benefit-sharing of contractual agreements for pharmaceutical bioprospection – an economic analysis with regard to the objectives of the Convention on Biological Diversity
    - First author: 1 original paper (Treffp Biol Vielfalt)
- Cortekar, Jörg (2004) Implikationen der Glückskonzepte des Kamerallismus und Utilitarismus für die Wahrnehmung der natürlichen Umwelt
    - First author: 1 monography
- Rajmis, Sandra (2005) Ökonomische Bewertung ökosystemarer Versicherungsdienstleistungen im Nationalpark Hainich (Thüringen) anhand eines Choice Experiments
    - First author: 1 original paper (Treffp Biol Vielfalt), 1 book chapter
- Yan, Jiong (2005) Influences of Collective 'Images-of-Nature' and of attitudes towards sustainable tourism on domestic Chinese tourist preferences for nature and on destination choice in Southwestern China
    - First author: 1 book chapter
- Thiel, Manuel (2006) Attitudinal and information effects on stated preferences for food from genetically modified rapeseed and maize
    - First author: 1 original paper (Treffp Biol Vielfalt)

20 other PhD projects (including external students) are currently under way.

Name: **MILITZ, HOLGER**

Date of Birth: March, 25th, 1960
Position: Professor (C4)
Address: Institut für Holzbiologie und Holztechnologie
Universität Göttingen, Büsgenweg 4,
D-37077 Göttingen, Germany
Phone: +49-551393564
Fax: +49-551399646
Email, web: hmilitz@gwdg.de, http://www.wood.uni-Göttingen.de/

Education and specialization:

1980-1987	Studies Wood Science and Technology, Univ. Hamburg
1987	Diploma in Wood Science and Technology, Univ. Hamburg
1990	PhD in Environmental Sciences (Wood related item), Univ. Wageningen, The Netherlands

Academic appointments:

1987-1990	Section leader wood technology, TNO Timber Research, NL
1990-2000	Group leader "wood science", SHR Timber Research, The Netherlands
1997-2000	Professor "Wood Science", Agricultural University Wageningen, NL
since 2000	Chair "Wood Biology and Wood Products", University Göttingen;

In 2006 Militz got a call from University Hamburg on the chair "Wood Biology and Wood Protection"

Other professional/academic positions:

1990-2000	Director of SHR Timber Research Institute, Wageningen, NL
since 2000	Board of Directors SHR Timber Research and SKH Timber Certification, Wageningen, The Netherlands
since 2002	Advisory Board (Beirat) Bundesforschungsanstalt f. Forst- und Holzwirtschaft, Hamburg
since 2005	Speaker and Head of the Kompetenznetz Holz NHN
since 2007	Advisory Board (Beirat) Fraunhofer Institut f. Holzforschung, WKI

Key research expertise:

- Cell wall modification of wood by chemical reactions
- Degradation patterns of wood by fungi and wood protection
- Physical behaviour of wood

Major research funds since 2001 (selection):

- Characterisation of modified wood deteriorated by basidiomycetes (DFG 2004-2007; 280,000 €)
- Improvement of wood by surface modification with nano components (AIF 2006-2008; 48,000 €)
- Improvement of wood product properties by increased hydrophobicity obtained by the use of silicon compounds (Hydrophob) (EU 2003-2006; 355,000 €)
- Development of wood protection laboratories (EFRE 2002-2005; 1,394,752 €)
- The use of modified wood in windows (DBU 2005-2007; 201,950 €)
- Modification of beechwood for new products (BMBF 2005-2009; 440,000 €)
- The use of Abies grandis from mixed beechwood stands (BMBF 2005-2009; 141,410 €)
- Preserving cultural heritage by preventing bacterial decay of wood in foundation poles and archaeological sites – BACPOLES (EU 2002-2005; 200,000 €)

- Several projects on new wood protection agents with the industry (DEGUSSA, HAMBERGER, PIRCHER-OBERLAND, REHAU, BASF, WOLMAN and JANSSEN (from 2002; 673,872 €)

Other academic activities:

- Peer reviewer for various funding agencies in Germany, Switzerland, Austria, Sweden, the Netherlands, the EU and the US
- Member of editorial board of the international journals “Holzforschung”, “Wood Research”, and “Holztechnologie”
- Coordinator of Master Programme “Wood Biology and Wood Technology” and of PhD Programme “Wood Biology and Wood Technology” at the Faculty of Forest Sciences and Forest Ecology, Göttingen

Ten most important publications:

Donath S, Militz H, Mai C (2006) Creating water-repellent effects on wood by treatment with silanes. Holzforschung 60: 40-46.

Xie Y, Krause A, Militz H, Mai C (2006) Coating performance of finishes on wood modified with an *N*-methylol compound. Progress in Organic Coatings 57: 291-300.

Tingaut P, Weigenand O, Militz H, Jéso de B, Sèbe G (2005) Functionalisation of wood by reaction with 3-isocyanatopropyltriethoxysilane: Grafting and hydrolysis of the triethoxysilane end groups. Holzforschung 59: 397-404.

Xie Y, Krause A, Mai C, Militz H, Richter K, Urban K, Evans PD (2005) Weathering of wood modified with the *N*-methylol compound 1,3-dimethylol-4,5-dihydroxyethyleneurea. Polymer Degradation and Stability 89: 189-199.

Donath S, Militz H, Mai C (2004) Wood modification with alkoxysilanes. Wood Science and Technology 38: 555-566.

Mai C, Kües U, Militz H (2004) Biotechnology in the wood industry. Applied Microbiology Biotechnol. 63: 477-497.

Mai C, Militz H (2004) Modification of wood with silicon compounds. Inorganic silicon compounds and sol-gel systems. Wood Science and Technology 37: 339-348.

Machek L, Edlund ML, Sierra-Alvarez R, Militz H (2003) A non-destructive approach approach for assessing decay in preservative treated wood. Wood Science and Technology 37: 411-417.

Sander C, Beckers EPJ, Militz H, van Veenendaal W (2003) Analysis of acetylated wood by electron microscopy. Wood Science and Technology 37: 39-46.

Meijer M de, Militz H (2000) Adhesion of low-VOC-coatings on wood: a quantitative analysis. Progress in Organic Coatings 28: 223-240.

Experience in the supervision of doctoral candidates (H. Militz)

H. Militz has over ten years experience in the supervision of PhD students in the fields of wood biology, wood chemistry and wood physics. A total of ten dissertations were successfully completed under his guidance. Besides Germany, supervised PhD students came from Austria, Bangladesh, China, France, India, Mexico, Norway, South Korea, Uruguay and Vietnam. H. Militz was asked to serve in thesis committees abroad: 1 Sweden, 2 The Netherlands, 1 Belgium.

Participation in PhD-programs:
Coordination of PhD program “Wood Biology and Technology”

Eight PhD students of H. Militz study currently in the program “Wood Biology and Technology” and six PhD students completed their studies in this program. H. Militz served in thesis committees of other institutes within the faculty (4 of Institute of Forest Botany, 1 of Institute of Silviculture and at other universities in Germany (1 Dresden, 3 Hamburg).

PhD level courses:
Wood Science and Technology (seminar)

PhDs in co-operation with industry:
Currently, three PhD projects are undertaken in research with industrial collaboration. Five other PhDs were performed in connection with the industry since 2001.

Supervision of PhD students since 2001:

- Mohebby B (2003) Biological attack of acetylated wood
    - First authorship: 2 papers (IRG, ECWM)
- Hansköttter B (2004) Diagnose fakultativer Farbkerne an stehender Rotbuche (Fagus sylvatica L.) mittels "Elektrischer Widerstandstomographie"
    - First authorship: 1 original paper (Forst und Holz)
- Donath S (2005) Treatment of wood with silanes
    - First authorship: 2 original papers (WOOD SCI TECHNOL, Holzforschung)
- Krause A (2006) Holzmodifizierung mit N-Methylolvernetzern
    - First authorship: 2 papers (IRG, ECWM)
- Larnøy E (2006) The use of chitosan as a wood protecting agent
    - First authorship: 2 papers (IRG, Holz als Roh-Werkstoff)
- Treu A (2006) Development and optimisation of a combined wood preservation process by means of water repellents
    - First authorship: 1 paper (IRG)
- Weigenand O (2006) Wood modification with different types of silicon compounds
    - First authorship: 2 original papers (J NAT PROD, IRG)
- Wepner S (2006) Entwicklung eines Modifizierungsverfahrens für Buchenfurniere (Fagus sylvatica L.) auf Basis von zyklischen N-Methylol-Verbindungen
    - First authorship: 1 paper (Forst)
- Xie Y (2006) Surface properties of wood modified with cyclic N-methylol compounds
    - First authorship: 3 original papers (PROG ORG COAT, Polymer Degradation and Stability, Holzforschung)
- Bollmus S (ongoing) Reaktion von Holzzellwänden mit N-Methyl-Glukol
- Dieste-Märkl A (ongoing) Trocknungsprozesse im Zuge der Holzmodifizierung mit Textilchemikalien
- Ghosh S (ongoing) Impregnation trials using supercritical carbon dioxide as solution agent
- Hundhausen U (ongoing) Entwicklung von biozidfreien, vergüteten Spanplatten durch chemische Modifizierung von Holzspänen mit Dicarbonsäureanhydriden
- Hong MN (ongoing) The use of paper modifiers for solid wood modification
- Mai TH (ongoing) Hydrophobierung von Furnieren und Furnierwerkstoffen

- Pfeffer A (ongoing) Influence of chemically modified wood surfaces on the development of sapstaining fungi
- Schaffert S (ongoing) Wood Modification with N-methylol Compounds
    - First authorship: 1 paper (Book chapter)
- Xiao Z (ongoing) Effects of chemical wood modification on the moisture characteristics and chemicals distribution

Name: **POLLE, ANDREA**

Date of Birth: September 18th, 1956
Position: Professor for Forest Botany and Tree Physiology (C4)
Address: Abt. Forstbotanik und Baumphysiologie
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Fax: +49-551392705
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Education and specialization:

1976-1981	Studies in Biology (University of Cologne)
1981	Diploma in Biology (main focus Botany)
1986	PhD in Biology (Focus: Biophysics, University of Osnabrück)
1995	Habilitation in Tree Physiology and Ecophysiology, University of Freiburg

Academic appointments:

1986-1987	Postdoc, University of Osnabrück (SFB, Membrane transport processes)
1988-1992	Group leader, Plant stress group, Fraunhofer Institut für Atmosphärische Umweltforschung, Garmisch-Partenkirchen
1992-1996	Akad. Rätin (lecturer), Institute for Forest Botany and Tree Physiology, University of Freiburg
since 1996	Full professorship (C4) in Forest Botany and Tree Physiology, University of Göttingen, Faculty for Forest Sciences and Ecology
since 2001	co-optation as member of the Biological Faculty

Awards and honours:

2006	Member of the Academy of Sciences, Göttingen

Other professional/academic positions:

since 1996	Member of the Editorial Advisory Board of Plant Cell and Environment
since 1999	Member of the Editorial Advisory Board/Handling Editor of Oecologia
since 2005	Communicating Editor of the New Phytologist
since 1996	Director of the Forest Botanical Garden, Göttingen University
since 2001	Director of LARI, the Radioactive Isotopes Lab., Göttingen University
2002-2005	Founding Speaker of the NHN (Competence Net for Sustainable Wood Utilization), at present Member of the Advisory Council
1999-2002	Chair Person of the Board of German Forestry Faculties
1999-2001	Dean of the Faculty for Forest Sciences and Forest Ecology
2001-2005	Vice-Dean of Faculty for Forest Sciences and Forest Ecology
2001-2005	Member of the senate of the University of Göttingen
2005-2008	Member of the Advisory Board (Stiftungsrat) of the Uni. of Göttingen
2000-2008	Peer review board of the German Science Foundation

Key research expertise:

- Stress physiology of trees (adaptation to environmental constraints, global change)
- Molecular ecophysiology of trees
- Mycorrhiza functions in nutrition and stress tolerance
- Functional anatomy and wood properties

Major research funds since 2001 (selection)

- DFG research unit FOR496: Poplar – a model to address tree-specific questions (2003-2009) Speaker; 637,428 €

- BMBF – Verbundprojekt: Verwertungsorientierte Untersuchungen der Buche und Küstentanne aus nachhaltig bewirtschafteten Mischbeständen (2005-2009) Coordinator; 1,046,325 €, shared with Prof. Militz, Prof. Hapla, Prof. Kharazipour, Prof. Kües
- Research Training Group (Graduiertenkolleg 1086) (2005-2009) The Role of Biodiversity for Biogeochemical Cycles and Biotic Interactions in Temperate Deciduous Forests, TP A1; 98,062 €
- ESTABLISH – EU project: Molecular ecophysiology as tool for the selection of highly stress resistant poplar species for multipurpose forests (2001-2005); 1,980,109 €; shared with the European partners - Coordinator
- POPFACE/EUROFACE - EU project Growth and carbon sequestration under changing environmental conditions(1999-2006); 56,000 €
- Establishing a Competence Net for Sustainable Wood Utilization – (EFRE-project, 2002-2005; 1,300,000 €, shared with U Kües)
- WOODYBIOTEC: Applied Environmental research in wood product biotechnologies (Marie-Curie Training Site, 2001-2005); 115,000 €

Other academic activities:

- Peer reviewer for various funding agencies in Germany, Czech Republic, Austria, Sweden, Israel, EU and the US

Ten most important publications:

Blödner C, Goebel C, Feussner I, Gatz C, Polle A (2007) Warm and cold parental reproductive environments affect seed properties, fitness, and cold responsiveness in *Arabidopsis thaliana* progenies. Plant, Cell & Environment 30: 165-175.

Bogeat-Triboulot MB, Brosché M, Renault J, Jouve L, LeThiec D, Fayyaz P, Vinocur B, Witters E, Laukens K, Teichmann T, Altman A, Hausman JF, Polle A, Kangajärvi J, Dreyer E (2007) Gradual soil water depletion results in reversible changes of gene expression, protein profiles, ecophysiology and growth performance in *Populus euphratica*, a poplar growing in arid regions. Plant Physiology, in press.

Luo ZB, Calfapietra C, Liberloo M, Scarascia-Mugnozza G, Polle A (2006) Carbon partitioning to mobile and structural fractions in poplar wood under elevated CO_2 (EUROFACE) and N-fertilization, Global Change Biology 12: 272-283.

Godbold DL, Hoosbeek MR, Lukac M, Cotrufo MF, Janssens IA, Ceulemans R, Polle A, Velthorst EJ, Scarascia-Mugnozza G, DeAngelis P, Miglietta F, Peressotti F (2006) Mycorrhizal hyphal turnover as a dominant process for carbon input into soil organic matter. Plant and Soil 281: 15-24.

Liberloo M, Calfapietra C, Lukac M, Godbold D, Luo ZB, Polle A, Hoosbeek MR, Kull O, Marek M, Raines C, Taylor G, Scarascia-Mugnozza G, Ceulemans R (2006) Woody biomass production during second rotation of a bio-energy Populus plantation increases in a future high CO2 world. Global Change Biology 12: 1094-1106.

Naumann A, Navarro-Gonzalez M, Peddireddi S, Kües U, Polle A (2005) Fourier transform infrared (FTIR) microscopy and imaging: detection and diagnosis of fungi in wood. Fungal Genetics and Biology 42: 829-835.

Cotrufo MF, De Angelis P, Polle A (2005) Leaf litter production and decomposition in a poplar short rotation coppice exposed to free air CO_2 enrichment (POPFACE). Global Change Biology 11: 971-982.

Brosché M, Vinocur B, Alatalo ER, Lamminmäki A, Teichmann T, Ottow EA, Djilianov D, Afif D, Triboulot-Bogeat MB, Altman A, Polle A, Dreyer E, Rudd S, Paulin L, Auvinen P, Kangasjärvi J (2005) Gene expression and metabolite profiling of *Populus euphratica* growing in the Negev desert, Genome Biology 6: R101.

Gafur A, Schützendübel A, Langenfeld-Heyser R, Fritz E, Polle A (2004) Compatible and incompetent *Paxillus involutus* isolates for ectomycorrhiza formation in vitro with poplar (*Populus* x *canescens*) differ in H_2O_2 production, Plant Biology 6: 91-99.

Ott T, Fritz E, Polle A, Schützendübel A (2002) Characterisation of antioxidative systems in the ectomycorrhiza-building basidiomycete *Paxillus involutus* (Bartsch.) FR. and its reaction to cadmium. FEMS Microbiology Ecology, 42: 359-366.

Experience in the supervision of doctoral candidates (A. Polle)

A. Polle has more than ten years experience in the supervision of PhD students in the fields of molecular ecophysiology and plant science. The students are enrolled at the Faculty of Forest Sciences and Forest Ecology or at the Biological Faculty. Since 2001, 11 PhD students successfully completed their theses and 13 others are currently under supervision, many of them in on-going PhD curricula. Polle is also involved in sandwich–programmes (DAAD), served as external thesis reviewer, e.g. at the TU-Berlin, Hannover, Würzburg, Halle or as examiner for the minor subject “Forest Botany (Nebenfach)” in thesis committees in Chemistry and Physics, and has been coordinator of a Marie Curie-Training site (2002 to 2006).

Participation in PhD-programs:
PhD program “Wood Biology and Technology”
PhD program “Forest Sciences and Forest Ecology”
PhD program “Biological Diversity and Ecology”
PhD program “Applied Information Sciences”

PhD level courses:
Wood Science and Technology (seminar)
Forest Botany (seminar)
Physiology and biotechnology of trees and fungi (lectures with laboratory courses)
Introduction to use of radioactivity in biology

International PhD student exchange:
In recent years, PhD students from Italy, Spain, Estonia, Lithuania, England, Myanmar, Mexico, India, and Turkey have been hosted for three to six months in the laboratory of Polle through funding by the Marie-Curie training site (European students) and the DAAD.

Thesis committees abroad:
A. Polle has served as an external referee for PhD students at the University of Helsinki, and Oulu (Finland) and Kopenhaven (Denmark).

PhDs in co-operation with industry:
Currently, one PhD project is undertaken with industrial collaboration.

Supervision of PhD students since 2001:
- Schützendübel, Anders (2001) Physiologische Reaktionen auf Cd 2+ Streß in nicht mykorrhizierten und mykorrhizierten Wurzeln von Kiefern (Pinus sylvestris L.), sowie den mykorrhizabildenden Basidiomyzeten Paxillus involutus und Suillus bovinus
    - First authorship: 3 original papers (Plant Physiol, J Exp. Bot, Plant Physiol Biochem); last authorship: (FEMS Microbiol Ecol), 1 review (Curr Top Genet)
- Peltzer, Detlef (2001) Anpassung antioxidativer Systeme an Licht und Temperatur: holzige und krautige Pflanzen im Vergleich
    - First authorship: 2 original paper (Physiol Plant, Plant Physiol Biochem), 1 Co-authorship (Forstw. Cbl.)
- Brinkmann, Kirsten (2002) Einfluss sich ändernder Umweltbedingungen auf Struktur- und Abwehrkomponenten in Buche und Pappel
    - First authorship: 2 original papers (J. Ecol Chem, Allg Forst-Jgdzt),
- Gross, Kristina (2002) Wachstum und Sekundärstoffwechsel von Wildtyp und transgenen Pappeln (Populus x canescens [AIT.] SM.) unter ambienten und erhöhten atmosphärischen CO2-Konzentrationen
    - First authorship: 1 original paper (Allg. Forst-Jagdzt)
- Blödner, Constanze (2005) Einfluss der Kreuzungsumgebung auf die Stressresistenz der Nachkommen von Fichte (Picea abies L. [Karst.] und Arabidopsis thaliana (L.)
    - First authorship: 3 original papers (Plant Cell Environm., J. Plant. Physiol., Tree Physiol.)

- Ottow, Eric Aart (2005) Molecular and ecophysiological responses of Populus euphratica (Oliv.) and Arabidopsis thaliana (L.) to salt stress
    - First authorship: 2 original papers (Plant Physiol., Plant Mol. Biol.), 1 Co-authorship (Genome Biol.)
- Beniwal, Rajender (2006) The modulation of drought responses in poplar and beech by mycorrhizal fungi (sandwich student)
    - First authorship: 1 original paper (Tree Physiol, submitted), 1 co-author (Plant Biol.)
- Junghans, Udo (2006) Anatomische und molekularbiologische Untersuchungen zur Auxinphysiologie in der Graupappel (Populus x canescens [Ait.] Sm.) und Arabidopsis thaliana (L.)
    - First authorship: 2 original papers (Plant Cell Environm., Plant Biol.)
- Luo, Zhibin (2006) Wood quality, carbon and nitrogen partitioning, and gene expression profiling in Populus exposed to free air CO2 enrichment (FACE) and N-fertilization
    - First authorship: 2 original paper (Global Change Biol, Trees, 2 further in preparation), 2 Co-author (Tree Physiol., Global Change Biol.)
- Ducic, Tanja (2006) Manganese uptake, transport, and toxicity in two varieties of Douglas fir (Pseudotsuga menziesii) as affected by mycorrhizae: from the cellular to the organismic level
    - First authorship: 3 original papers (New Phytol., Funct. Plant Biol., Mycorrhiza, under revision), 1 review (Brazilian J Plant Physiol)
- Fiebelkorn Gerlind (2006) Untersuchungen zum anatomischen, physiologischen und molekularbiologischen Abwehrverhalten an gesunden und geschädgten Buchen (Fagus sylvatica L.) mit der Symptomatik „Buchenkomplexkrankheit“
    - First authorship: 1 original paper (national)

Dissertations ongoing:

- Bolu, Waode: Die Bedeutung des Hormonhaushalts der Pappel bei der Reaktion auf Stress
    - First authorship: 1 original paper (J. Tropical Ecol.), 1 Co-authorship (Book chapter)
- Catewicz, Karl: Konstruktion und Validierung eines Computermodells zur Simulation antioxidativer Systeme in Pflanzen
- Elobeid, Mudawi: Einfluß von Schwermetallen und Modulation durch Mykorrhizapilze auf die Hormon- und Stressphysiologie der Pappel
- Hawighorst, Peter: Transport- und Speichermechanismen für Natrium und Kalzium in der Pappel
- Janz, Dennis: Expressional profiling and functional analysis of salt tolerance in relation to stem development
- Lang, Christa: Mykorrhizadiversität in Laubmischbeständen in Abhängigkeit der Baumartendiversität
- Mishra-Knyrim, Manika: Charakterisierung der Streßtoleranz des mykorrhiza-bildenden Pilzes Paxillus involutus in Reinkultur und in Symbiose
- Müller Günther: Einsatz von FTIR zur Produktoptimierung und der Prozesskontrolle
    - First authorship: 1 original paper (national)
- Pena, Rodica: Identification and characterisation of ectomycorrhizal fungi by FTIR spectroscopy and microscopy
- Platner, Katharina: Functional diversity of mycorrhizal fungi in beech (Fagus sylvatica) with respect to nitrogen and water supply
- Poorkhabbaz, Alireza: The influence of air pollution on urban trees in cities and rural areas in Iran
- Rana, Rumana: Anatomy and FTIR spectroscopy as tools for wood identification and certification
    - First authorship: 1 original paper (Holzforschung, submitted)
- Schäfer, Tina: Mycorrhizadiversität bei transgenen Apfelbäumen (external with Prof. Francois Buscot)

Name: **QAIM, MATIN**

Date of birth: December 20, 1969
Position: Professor (W3)
Address: From October 2007:
Department of Agricultural Economics and Rural Development
University of Göttingen, Göttingen, Germany
Until September 2007:
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Education and specialization:

1990-1992	Studies in Agricultural Sciences (University of Bonn)
1993-1996	Studies in Agricultural Sciences (University of Kiel)
1996	Diploma in Agricultural Sciences (main focus Agr. Economics)
2000	PhD in Agricultural Economics, University of Bonn
2003	Habilitation in Agricultural and Development Economics, University of Bonn

Academic appointments:

1996-1997	Research Associate, University of Kiel
1997-2000	Research Associate, Centre for Development Research, Bonn
2001-2003	Postdoc, University of California at Berkeley
2003-2004	Group leader, Centre for Development Research, Bonn
2004-2007	Full professor, University of Hohenheim, Stuttgart
from 2007	Full professor, University of Göttingen

Awards and honors:

2000	Josef G. Knoll-Science-Award (Eiselen Foundation)
2001-2003	DFG Emmy Noether-Scholarship
2003-2005	DFG Emmy Noether Junior Research Group
2003	Nils Westermarck-Award (International Association of Agricultural Economists, IAAE)

Other professional/academic positions:

since 2007	Associate Editor of the Journal “Agricultural Economics”
since 2007	Associate Editor of the Journal “e-conomics”
since 2006	Chairman of the External Advisory Board of the Africa Biofortified Sorghum (ABS) Project (International Research Project Funded by the Gates Foundation)
since 2006	Member of the Golden Rice Humanitarian Board
since 2005	Member of the Board of the German Council for Tropical and Subtropical Agricultural Research (ATSAF)
since 2005	Member of the Selection Committee for Doctoral Students from Africa of the German Academic Exchange Service (DAAD)
since 2005	Founding Editor of the IAAE Discussion Paper Series

Key research expertise:

- Economics of Biotechnology and Agricultural Research Systems
- Food Security and Sustainable Development
- Nutrition and Health Economics

- High-Value Agricultural Markets in Developing Countries
- Farming Systems in Developing Countries

Major research funds since 2000 (selection):
- Food quality and safety issues in markets for high-value products in Thailand and Vietnam (DFG SFB 564 Subproject, Third Phase, 2006-2009; 214,000 €)
- Food Safety in Fruits and Vegetables in Vietnam – Consumer Demand and Firm Compliance (GTZ/BMZ, 2005-2007; 65,000 €, together with AVRDC)
- Modern Agricultural Technologies: Economic and Institutional Implications in Developing Countries (DFG, 2005-2007; 246,000 €)
- Socioeconomic Effects of Bt Eggplant in India (USAID, 2004-2006; 42,000 €)
- Biotechnological Innovation in Agriculture: Determinants and Impacts in Developing Countries (DFG, Emmy Noether Research Group, 2001-2005; 358,000 €)
- Biotechnological Innovation in Agriculture: Determinants and Impacts in Developing Countries (DFG, Emmy Noether Scholarship and Research Grant, 2001-2003; 108,000 €)

Other academic activities
- Head of the Agricultural Economics Master Program and Spokesman for the International Degree Programs at the University of Hohenheim (2005-2007)
- Referee for the German Research Foundation (DFG)
- Regular Referee for Over 15 International Academic Journals
- Regular Referee for National and International Conferences
- Scientific Advisor for Various Public Organizations on Development Issues

Ten most important publications:
Basu AK, M Qaim (in press) On the Adoption of Genetically Modified Seeds in Developing Countries and the Optimal Types of Government Intervention. American Journal of Agricultural Economics.

Matuschke I, Mishra RR, Qaim M (in press) Adoption and Impact of Hybrid Wheat in India. World Development.

Stein AJ, Nestel P, Meenakshi JV, Qaim M, Sachdev HPS, Bhutta ZA (in press) Plant Breeding to Control Zinc Deficiency in India: How Cost-Effective is Biofortification? Public Health Nutrition.

Stein AJ, Sachdev HPS, Qaim M (2006) Potential Impact and Cost-Effectiveness of Golden Rice. Nature Biotechnology, Vol 24, No 10, pp 1200-1201.

Qaim M (2005) Agricultural Biotechnology Adoption in Developing Countries. *American* Journal of Agricultural Economics, Vol 87, No 5, pp 1317-1324.

Qaim M, Traxler G (2005) Roundup Ready Soybeans in Argentina: Farm Level and Aggregate Welfare Effects. Agricultural Economics, Vol 32, No 1, pp 73-86.

Zimmermann R, Qaim M (2004) Potential Health Benefits of Golden Rice: A Philippine Case Study. Food Policy, Vol 29, No 2, pp 147-168.

Qaim M (2003) Bt Cotton in India: Field Trial Results and Economic Projections. World Development, Vol 31, No 12, pp 2115-2127.

Qaim M, de Janvry A (2003) Genetically Modified Crops, Corporate Pricing Strategies, and Farmers' Adoption: The Case of Bt Cotton in Argentina. American Journal of Agricultural Economics, Vol 85, No 4, pp 814-828.

Qaim M, Zilberman D (2003) Yield Effects of Genetically Modified Crops in Developing Countries. Science, Vol 299, pp 900-902.

Experience in supervision of doctoral candidates (M. Qaim)

Matin Qaim has gained experience in post-graduate training and the organization of study programs in different institutions. Between 1998 and 2000, he was involved in the design and establishment of the structured doctoral program at the Centre for Development Research (ZEF) in Bonn. Between 2005 and 2007, he was spokesperson of Hohenheim's International Degree Programs. Since 2005, he has been member of the DAAD selection committee for scholarship applicants from Sub-Saharan Africa. This institutional experience is in addition to the direct supervision of doctoral candidates.

Supervision of PhD students since 2001:

- Zimmermann, Roukayatou (2003): Biotechnology and value-added traits in food crops: Relevance for developing countries and economic analysis. University of Bonn
    - First authorship, 1 original paper (Food Policy)
- Sabir, Hazoor M. (2004). Rural poverty alleviation through the empowerment of small-scale farmers in the Central Punjab. University of Agriculture, Faisalabad, Pakistan (co-supervision)
- Canz, Stefan (2005). Linking small-scale farmers to output markets. University of Hohenheim (co-supervision)
- Stein, Alexander (2006). Micronutrient malnutrition and the impact of modern plant breeding on public health in India: How cost-effective is biofortification? University of Hohenheim
    - First authorship, so far 4 original papers (Nature Biotechnology, World Development, Public Health Nutrition, Food and Nutrition Bulletin)
- Matuschke, Ira (2007). Adoption and impact of proprietary seed technologies in staple food crops: The case of hybrid wheat and pearl millet in India. University of Hohenheim
    - First authorship, so far 1 original paper (World Development)

Supervision of ongoing dissertations:

- Subramanian, Arjunan (expected in early 2007). Production and distribution in a village economy: The case of cotton in India
- Krishna, Vijesh (expected in mid 2007). Potential socioeconomic effects of Bt vegetables in India
    - First authorship, so far 2 original papers (Food Policy, Review of Agricultural Economics)
- Heyd, Helene (expected in mid 2007). Nutritional status of households in Uganda and the potential role of orange-fleshed sweetpotato
- Mergenthaler, Marcus (expected in late 2007). Food quality and safety in Vietnamese fruit and vegetable supply chains
- Babatunde, Raphael (expected in 2008). The impact of off-farm income on food security and rural livelihoods in Nigeria
- Ecker, Olivier (expected in 2008). Economics of micronutrient malnutrition in East Africa
- Gonzalez, Carolina (expected in 2008). Potential impacts and consumer acceptance of genetically modified, biofortified cassava in Brazil
- Prakash, Sadashivappa (expected in 2009). Impacts of Bt cotton in India: A panel data analysis
- Purwestri, Ratna (expected in 2009). Efficacy and cost-effectiveness of locally produced ready-to-use therapeutic foods for malnourished children in Indonesia

Name: **REITNER, JOACHIM**

Date of Birth: 06.05.1952
Position: C4 Professor (Paleontology-Geobiology)
Address: Dept. Geobiology-GZG
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D-37077 Göttingen, Germany
Phone: 0551 397950
Email, web: jreitne@gewdg.de, http://www.geobiologie.uni-Göttingen.de/

Education and specialization:

1980	Diploma in Geology/Palaeontology, University of Tübingen
1980	1984 doctoral research fellow, Eberhard Karls University Tübingen,
1984	Dr. rer. nat. in Geology/Palaeontology, University of Tübingen.
1991	Habilitation in Geology/Palaeontology, FU-Berlin.

Academic appointments:

1984-1988	postdoctoral research fellow, FU-Berlin
1989-1994	Assistant Professor, FU-Berlin
1993	Visiting Professor, University of Paris-Sud XI/Orsay
since 1994	Full Professor (C4) in Palaeontology and Geobiology, University of Göttingen
1999	Call C4 Professorship for Palaeontology, University of Erlangen
2006	Visiting Professor, North-West University of Xian (China)

Awards and honours:

1996	G.W. Leibniz Award of the DFG
1998	Member of the Academy of Sciences, Göttingen

Other professional/academic positions:
Head of the Geobiology Department of GZG and chair of Paleontology and Geobiology
Director of the Geoscience Museum, Collection, and Geoparc of the GZG
2002-2004 Dean of the faculty of Geosciences and Geography
2001-2002 and 2005-2007 Vice Dean of the faculty of Geosciences and Geography
Member of the steering committee of Göttingen Centre for Biodiversity and Ecology (GCBE)
Member of the research commission of the academic senate (Univ. Göttingen) (since 2005)
Deputy senator of the academic senate of the university of Göttingen (2005-2007)
Vice President of the German „Paläontologische Gesellschaft“ (since 2005).
DFG selection board Heinz Maier-Leibnitz award (since 2005).

Key research expertise:
- Geobiology of prebiotic and early life processes - Astrobiology
- Biomineralization and biodiversity of rock-forming biofilms and microbial mats,
- Geomicrobiology and biogeochemistry of the deep subterranean biosphere (“Deep Biosphere”)
- Microbial palaeo-ecology of modern and ancient cold seep environments,
- Phylogeny and biogeochemistry of basic metazoans (sponges, cnidarians),
- Biogeochemistry of eukaryotic biomineralisation (carbonates and silicates)

Major research funds since 2001 (selection):
DFG Biomineralisation (2001-2003; 230,000 €)
DFG Biomineralisation (2004-2006; 88,000 €)
DFG Saline fluids (ICDP) (2002-2004 80,000 €)
DFG Geobiology of KTB saline fluids (2004-2006; 33,000 €)
DFG Sediment-Geochemie (2001-2002; 85,000 €)

DFG Paläozoikum/Sediment-Geochemie (2003-2004; 30,000 €)
DFG Anzestrale Benthosgemeinschaften (2001-2002; 85,000 €)
DFG Anzestrale Benthosgemeinschaften (2003-2004; 45,000 €)
BMBF GHOSTDABS (Cold Seeps Black Sea) (2001-2004; 85,000 €)
BMBF BOSMAN II (Boreale Schwämme) (2002-2005; 227,000 €)
MWK Nds. Bernsteinkonservierung (2003; 60,000 €)
DFG Ancient endolithic microorganisms within ultramafic rocks (2004-2006; 100,000 €)
DFG Phylogenie u. molekulare Systematik der Kalkschwämme (2004- 2008; 120,000 €)
DFG Characterization of matrix proteins of the coralline demosponge Astrosclera willeyana: (2005-2008; 120,000 €)
DFG Forschergruppe 571 "Geobiologie von Organo- u. Biofilmen: 2004-2008; ca. 3 Mill. €)
DFG Phylogenetische Charakterisierung der Hexactinellida (2005-2007; 80,000 €)
BMBF COMET, TP3: Low Temperature Gas & Fluid Venting System (2005-2006; 39,000 €)
DFG Deep Metazoan Phylogeny: Stammesgeschichte Großgruppe Tiere (2006-2008; 100,000 €)
DFG Forschungssemester (2006-2007; 45,000 €)

Other academic activities:

- Editor in Chief: *Lecture Notes in Earth Sciences (Springer)*
- Co-Editor*: Facies (Springer)*
- Associated Editor: *Geomicrobiology Journal (Taylor & Francis)*
- Editorial Board: *Goettinger Universitätsverlag*
- Reviewer in numerous journals, e.g.: Facies, Mikrochimica Acta, Cell & Tissue Research, Geomicrobiology Journal, Journal of Sedimentary Geology, Journal of Structural Geology, Journal of Sedimentary Research, Naturwissenschaftliche Rundschau, Earth & Planetary Science Letters, Sedimentology - Journal of the IAS;
- Canadian Journal of Earth Sciences, Geochimica et Cosmochimica Acta

Ten most important publications:

Gussone N, Böhm F, Eisenhauer A, Dietzel M, Heuser A, Teichert BMA, Reitner J, Wörheide G, Dullo Chr (2005) Calcium Isotope Fractionation in Calcite and Aragonite. *Geochimica, Cosmochimica, Acta* 69 (18), 4485-4494.

Hoffmann F, Larsen O, Thiel V, Rapp HT, Pape T, Michaelis W, Reitner J (2005) An anaerobic world in sponges. Geomicrobiology Journal 22, 1-10.

Reitner J, Peckmann J, Blumenberg M, Michaelis W, Reimer A, Thiel V (2005) “Anatomy of methane-derived carbonates and associated microbial communities in Black Sea sediments”. Palaeogeography, Palaeoclimatology, Palaeoecology 227: 18-30.

Blumenberg M, Seifert R, Reitner J, Pape T, Michaelis W (2004) Membrane lipid patterns typify distinct anaerobic methanotrophic consortia- PNAS, 101 (no 30),11111-11116.

Arp G, Reimer A, Reitner J (2003) Microbialite formation in seawater of increased alkalinity, Satonda Crater Lake, Indonesia - Jour Sed Res 73: 105-127.

Reitner J, Wörheide G (2002) Non-Lithistid fossil Demospongiae – Origins of their Palaeobiodiversity and Highlights in History of Preservation.- In: Hooper JNA, Van Soest R (eds) Systema Porifera: A Guide to the Classification of Sponges.- 52-68 (Kluwer) New York.

Arp G, Reimer A, Reitner J (2001a) Photosynthesis-induced biofilm calcification and Calcium concentrations in Phanerozoic Ocean- Science, 292: 1701-1704.

Reitner J, Wörheide G, Lange R, Schumann-Kindel G (2001) Coralline Demosponges – A geobiological portrait- Bull Tohoku Univ Mus, 1: 210-226.

Reitner J, Mehl D (1996) Monophyly of the Porifera. - Verh.naturwiss.Ver.Hamburg.(N.F.) 36, 5-32; Hamburg.

Reitner J (1993) Modern Cryptic Microbialite/Metazoan Facies from Lizard Island (Great Barrier Reef, Australia) - Formation and Concepts. - Facies, 29: 3-40, Erlangen.

Experience in the supervision of doctoral candidates (J. Reitner)

J. Reitner has over 25 year experiences in the supervision of PhD students in the fields of geobiology, paleontology, molecular biology, and zoology. A total of 8 dissertations were successfully completed since 2000 under his direct guidance.

Participation in PhD-programs:
PhD – Programme of GCBE

PhD level courses:
Geobiology and Geomicrobiology seminars

International PhD student exchange:
DAAD: 1996 PhD supervision of Elisabeth Chacon-Baca (UNCAM, Mexico)
2007 PhD supervision Francisco Sanchez (Mexico)

Thesis committees abroad:
Diverse participation at Univ. of Hamburg, FU-Berlin, Univ. Bremen

Supervision of PhD students since 2001:

- Bullwinkel V (2003) Organische Petrologie und Mikrofazies der mitteleozänen Sedimente des Eckfelder Maares (Südwesteifel)
    - Corresponding author, 1 original paper (Courier Forschungsinstitut Senckenberg 241: 163-181)
- Hoffmann F (2003) Microbial sulfate reduction in the tissue of the cold-water sponge Geodia barretti (Tetractinellida, Demospongiae)
    - First authorship, 1 original paper (Geomicrobiology Journal 22, 1-10)
- Koos R (2004) Geomikrobiologie von ozeanischen Basalten (ODP Leg 200)
- Caselmann (geb. Pache) M (2005) Rezente und subrezente Mikrobialithe westaustralischer Seen
    - First authorship, 1 original paper (Facies, 45, 211-230)
- Delecat S (2005) Porifera-microbialites of the Lower Liassic (Northern Calcareous Alps) - Re-settlement strategies on submarine mounds of dead Rhaetian reefs by ancestral benthic communities
    - First authorship, 1 original paper (Facies *51 (1-4): 385-404*)
- Hühne C (2005) Geochemie Porifera-reicher Mud Mounds und Mikrobialithe des Mittel- und Oberdevons (Westaustralien, Nordfrankreich)
    - Corresponding author, 1 original paper (Terra Nostra, 2001/4, 60-65)

Current PhD-students:

- Heim, Christine: Geomikrobiologie und Biomarker, Tiefe Biosphäre tunnel von Äspö
- Heller, Christina: Enzymatische Aktivitäten in biologischen Methan-Systemen,
- Karlinska, Klementyna: Molecular biology of photic microbial systems (Kiritimati)
- Pick, Kerstin: Phylogeny of sponges
- Rathsack, Kristina: Geomikrobiologie von ozeanischen Basalten (ODP Leg 200)
- Shiraishi, Fumito: Geobiology of fresh water tufa systems
- Stückrad, Oliver: Geochemistry of the KTB-pilote hole fluids
- Beimforde, Christina: Microbial biodiversity of amber

Name: **SCHLATHER, MARTIN**

Date of Birth: April 23rd, 1968
Position: Professor (W3)
Address: Institut für Mathematische Stochastik
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Education and specialization:

1988-1990	Studies in Mathematics (Univ. Stuttgart)
1990-1994	Studies in Mathematics and Geoecology (Univ. Bayreuth)
1994	Diploma in Mathematics (main focus on robust statistics)
1994-1995	Studies in Geostatistics (Ecole des Mines de Paris, Fontainebleau)
1995	DEA in Geostatistics
1997	PhD in Mathematics (stochastic geometry), TU Bergakademie Freiberg
2002	Habilitation in Mathematics (spatial statistics), TU Bergakad. Freiberg

Academic appointments:

1994	Lecturer, Univ. Bayreuth (Mathematics)
1997	Visiting Research Assistant, Seminar for Statistics, ETH Zurich
1998-1999	RA, Dept. of Mathematics & Statistics, Lancaster Univ
1999-2003	RA, Bayreuth Inst. for Terrestrial Ecol., Univ. Bayreuth (Soil Physics)
2003	Lecturer, Univ. Bayreuth (Mathematics)
2003-2004	Assistant Professor in Probability Theory, Univ. du Luxembourg
2004-2006	Associate Professor in Computational Statistics, Helmut Schmidt Univ. Hamburg
since 2006	Full prof. in Stochastics and Their Applications, Univ. Göttingen

Other professional/academic positions:

2004-2005	Chair of the local organisation committee of the 76th annual meeting of the Gesellschaft für Angewandte Mathematik und Mechanik, Luxembourg, 2005
2006	Chair of the planning committee for the specialization in Risk Management within the MA studies of economics
since 2007	Speaker of the Centre for Statistics, Univ. Göttingen

Key research expertise:

- Geostatistics (parametric families and properties of variogram models for spatial and spatio-temporal modelling)
- Computational statistics (fast geostatistical simulations; automatic choice between algorithms; coding in R)
- Extreme value statistics (properties of multivariate and spatial extreme values processes)
- Stochastic geometry (theory and statistics of marked point processes and their application in forestry)
- Soil physics (stochastic aspects of water flux, in particular of infiltration; development of software)

Other academic activities:

- Peer reviewer for a funding agency in Austria
- Regular peer reviewer for various journals in the field of stochastic geometry, geostatistics, extreme value statistics

Ten most important publications:

Gneiting T, Sevcikova H, Percival D, Schlather M, Jiang Y (2006) Fast and Exact Simulation of Large Gaussian Lattice Systems in R^2: Exploring the Limits. J Comput Graph Stat 15:483-501.

Schlather M, Huwe, B (2005) A risk index for characterising flow pattern in soils using dyetracer distributions. J Contam Hydrol 79:25-44.

Schlather M, Huwe, B (2005) A stochastic model for 3-dimensional flow patterns in infiltration experiments. J Hydrol 310:17-27.

Schlather M (2004) SoPhy: contributed extension package to R for the simulation of water flow in soil. http://cran.r-project.org (GNU licensed software).

Schlather M, Huwe B (2004) The use of the language interface of R: two examples for modelling water flux and solute transport. Comput Geosci 30:197-201.

Schlather M, Ribeiro P, Diggle P (2004) Detecting Dependence Between Marks and Locations of Marked Point Processes. J R Statist Soc, Ser B: 66:79-83.

Schlather M, Tawn J (2003) A Dependence Measure for Multivariate and Spatial Extreme Values: Properties and Inference. Biometrika 90:139-156.

Gneiting T, Schlather M (2002) Space-time covariance models. In El-Shaarawi AH and Piegorsch WW, Encyclopedia of Environmetrics, Wiley, 2041-2045.

Schlather M (2002) Models for stationary max-stable random fields. Extremes 5: 33-44.

Schlather M (2001) On the second-order characteristics of marked point processes. Bernoulli 7:99-117.

Experience in the supervision of doctoral candidates (M. Schlather)

Martin Schlather has been co-supervising a few PhD theses at BITÖK before he has started supervising PhD theses on its own in 2005.

Responsibility for PhD-programs:
Being the speaker of the Centre for Statistics, Martin Schlather is also responsible for the PhD program “Applied Statistics and Empirical Methods” offered by the Centre.

Participation in PhD-programs:
PhD program “Program in Environmental Informatics”: *participation foreseen*

Interdisciplinarity:
Martin Schlather supports interdisciplinary, mentoring-intensive approaches of PhD students: Andree Ehlert is Diplom-Volkswirt and works on a theoretically oriented PhD thesis in mathematics. Dipl.-Math. Michael Scheuerer will closely cooperate with the Département Environnement et Agro-biotechnologies of the Centre de Recherche Publique Gabriel Lippmann, Luxembourg.

PhD level courses:
Geostatistics (course)
Introduction into extreme value theory (course)
Introduction into data analysis (course as from summer 07)
Introduction into mathematical methods in statistics (course as from winter 07/08)

Co-Supervision of PhD students :
- Schillinger, M. (2002) Area based estimation with CART and robust estimation of the goodness of ecological parameters in a small catchment area
- Albrecht, C. (2005) Computer based indentification of soils
- Bogner, C. (since 2005) Dynamics and patterns of water flow in disturbed and undisturbed soils
    - First authorship: 1 original paper submitted to Ecological Studies

Supervision of PhD students:
- Ehlert, A. (since 2005) Characteristics for multivariate time series of extreme values and applications in economics
    - First authorship: 1 original paper submitted to Extremes
- Janssen, A. (since 2006) Limit theorems between sums and maxima
- Scheuerer, M. (since 2007) Improved forecasting of flooding events in Luxembourg city based on water gauge measurements and radar data

All three PhD students supervised by M. Schlather study in the program “Applied Statistics and Empirical Methods”.

Name: **SCHLECHT, EVA**

Date of Birth: June 16th, 1965
Position: Professor (W2)
Address: Group Animal Husbandry in the Tropics and Subtropics
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Email, web: eschlec1@gwdg.de, www.tierzucht.uni-Göttingen.de/staffdetail.php?Stafid=8&pagetype=1&lang=deutsch

Education and specialization:

1984-1989	Studies in Agricultural Sciences (Univ. Hohenheim)
1989	Diploma in Agricultural Sciences (main focus Animal Nutrition)
1994	PhD in Animal Nutrition Univ. Hohenheim
2005	Habilitation in Tropical Animal Husbandry and Nutrition, Univ. Hohenheim

Academic appointments:

1995-1996	Postdoc International Livestock Research Institute, Niamey, Niger (Livestock nutrition)
1997-2000	Postdoc International Crops Research Institute for the Semi-Arid Tropics & Univ. Hohenheim, based at Niamey/Niger (Livestock mediated nutrient cycling)
2001-2005	Postdoc at the Inst. for Animal Production in the Tropics and Subtropics, Univ. Hohenheim (Livestock environment interactions)
since 2006	Full professorship (W2) in Animal Husbandry in the Tropics and Subtropics, Uni. Kassel and Uni. Göttingen

Awards and honours:

2002	Award, Stifterverband für die Deutsche Wissenschaft / Deutsche Forschungsgemeinschaft
2004	Landesforschungspreis, Ministerium für Wissenschaft, Forschung und Kunst Baden-Württemberg

Other professional/academic positions:

since 2004	Member of the Council for Tropical and Subtropical Agricultural Research (ATSAF)
since 2004	Member of the League for Pastoral Peoples and Endogenous Livestock Development
since 2005	Member of the Society for the Conservation of Old and Endangered Livestock Breeds (GEH)

Key research expertise:

- Ruminant nutrition and digesta passage under (sub)tropical conditions (low quality feeds, anti-nutrients)
- Livestock behaviour on pasture (circadian rhythms and spatial orientation of ingestion and excretion)
- Livestock mediated nutrient cycling (interdependency of diet and dung quality)
- Non-invasive methods for quantification of intake and behaviour of free grazing livestock

Major research funds since 2001:

- Nutrient transfers and production efficiencies in urban and peri-urban crop-livestock agriculture in a West African capital city (11/2005-10/2008; DFG) 37,918 € and 1 x BAT IIa 1/2
- Transformation processes in oasis settlements of Oman: Matter and nutrient fluxes-Scenario development and compilation of an interdisciplinary (Internet) atlas (08/2006-12/2007; DFG) 29,250 € and 1 x BAT IIa 1/2
- By-products of food production and processing as feeds for pigs (05/2005-12/2007; AvH Stiftung & Land Baden-Württemberg): 70,000 €
- Challenges and opportunities for nutrient efficient agriculture in West African cities; (01/2007-12/2009; Volkswagen Foundation): 225,100 €

Other academic activities:

- Regular peer reviewer for various journals in the field of tropical agriculture and landscape ecology

Ten most important publications:

Schlecht E, Buerkert A, Tielkes E, Bationo A (2006) A critical analysis of challenges and opportunities for soil fertility restoration in Sudano-Sahelian West Africa. Nut Cyc Agroecosys. *http://www.springerlink.com/content/460qk52751w82036/fulltext.pdf.*

Schlecht E, Hiernaux P, Kadaouré I, Hülsebusch C, Mahler F (2006) A spatio-temporal analysis of forage availability, grazing and excretion behaviour of cattle, sheep and goats in Western Niger. Agr Ecosys Environ 113: 226-242.

Schlecht E, Susenbeth A (2006) Estimating the digestibility of Sahelian roughages from faecal crude protein concentration of cattle and small ruminants. J Anim Physiol Anim Nutr 90: 369-379.

Richter H, Schlecht E (2006) Accounting for marker disassociation when modelling ruminal escape of particles based on the faecal excretion of Ytterbium. Anim Feed Sci Technol 128: 135-154.

Turner MD, Hiernaux P, Schlecht E (2005) The distribution of grazing pressure in relation to vegetation resources in semi-arid West Africa: The role of herding. Ecosys. 8, 668-281.

Schlecht E, Buerkert A (2004) Organic inputs on millet fields in western Niger: the implications of farmers' practices for sustainable agricultural production. Geoderma 121, 271-289.

Schlecht E, Hiernaux P (2004) Beyond adding up inputs and outputs: Process assessment and upscaling in modelling nutrient flows. Nut Cyc Agroecosys 70: 303-319.

Schlecht E, Hiernaux P, Achard F, Turner MD (2004) Livestock related nutrient budgets within village territories in western Niger. Nut Cyc Agroecosys 68: 199-211.

Schlecht E, Hülsebusch C, Mahler F, Becker K (2004) The use of differentially corrected global positioning system to monitor activities of cattle at pasture. Appl Anim Behav Sci 85: 185-202.

Schlecht E, Kadaouré I, Becker K (2003) Moving across village landscapes: Seasonal changes of grazing orbits of cattle, sheep and goats in the Sahel. Trop Subtrop Agroecosys 3: 427-431.

Experience in the supervision of doctoral candidates (E. Schlecht)

Due to the regulations at German universities, E. Schlecht has officially taken up the supervision of PhD students in 2005, after completing her habilitation. At present, three PhD students are working under her direct guidance, for another 3 PhD students she assures co-supervision. In May/June 2007, two more PhD students will start their research projects under E. Schlecht's direct supervision. Fields of research are urban livestock husbandry animal nutrition and livestock contribution to rural-livelihoods.

Participation in PhD-programs:
Research Training Group (DFG-Graduiertenkolleg) 1397
Regulation of soil organic matter and nutrient turnover in organic agriculture

One PhD student of E. Schlecht currently studies in the Research Training Group "Regulation of soil organic matter and nutrient turnover in organic agriculture" at Kassel University.

PhD level courses:
Animal environment interactions in the (sub-)tropics (lecture)
Tropical animal husbandry systems (lecture)
Multidisciplinary research in tropical production systems (methodological course)
Animal husbandry and sustainable land use (lecture and field training course)

Thesis committees abroad:
E. Schlecht has served as an external referee for two PhD candidates at the University of Uppsala, Sweden (2005), and one PhD candidate at Wageningen University, The Netherlands (2006).

Supervision of PhD students since 2005:
Diogo, R. (since 11/2005): Matter fluxes and production efficiencies along the plant-animal continuum in urban and peri-urban agriculture of a West African city
Dickhoefer, U. (since 08/2006): Socio-economic analysis of crop and livestock husbandry in oasis settlements of Oman
Al-Asfoor, H. (since 01/2007): Effects of different feeding regimes under subtropical conditions on the quality of manure from ruminants in relation to the availability of nutrients for microbial and plant growth

Name: **SCHÜTZ, STEFAN**

Date of Birth: January 23th, 1964
Position: Professor (C4)
Address: Institut für Forstzoologie und Waldschutz
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Fax: +49-551392089
Email, web: stefan.schuetz@forst.uni-Göttingen.de, http://gwdu05.gwdg.de/~uffz/

Education and specialization:

1984	Studies in Biology and Chemistry (Univ. Gießen)
1988	Diploma in Chemistry (main focus solid state chemistry)
1990	Diploma in Biology (main focus plant ecology)
1991	Dr.rer.nat. in Chemistry, Univ. Gießen
1992	R&D chemist at BASF AG, Ludwigshafen
2000	Habilitation in Plant Protection and Biosensorics, Univ. Gießen

Academic appointments:

1993-1998	Postdoc Univ. of Gießen (Applied Zoology and Plant Protection)
1995	Visiting Assistant Professor, UC Davis, USA (Entomology & Ecotoxicology)
1998	Postdoc Institute for Materials in Electrotechniques, RWTH Aachen (Biosensorics)
1999	DFG-Habilitationsstipendium, Univ. of Gießen (Chemical Ecology)
2000	Professor (C3) of Chemoecology at the Faculty of Natural Sciences, University of Ulm
2002	Full professorship (C4) in Forest Zoology and Forest Conservation, Univ. of Göttingen

Awards and honours:

1998	Prize of the International Society of Chemical Sensors
1998	Prize of the Electrochemical Society
2004	Prize of the Analytical Chemistry Division of the German Chemical Society (GDCh)

Other professional/academic positions:

2001	Founding member of the Neurozentrum, Univ. Ulm
2004-2006	Dean of the Faculty of Forest Science and Forest Ecology, Univ. Göttingen
since 2006	Vice-Dean of the Faculty of Forest Science and Forest Ecology, Univ. Göttingen
since 2007	Member of the Senat, Univ. Göttingen

Key research expertise:

- Chemical ecology of stress responses in plants
- Sensory ecology of odour perception
- Biotic interactions and diversity
- Molecular and physiological basis of insect olfaction
- Biosensors and Early Warning Systems

Major research funds since 2001 (selection):

- DFG-Forschergruppe FOR 546, Teilprojekt Schu 1135/8-1; "Examination of fungal infection specific plant volatiles causing perception and host choice responses by herbivorous insects and their antagonists". 2004-2007; 100,000 €)
- EU-NoE Evoltree – Research on Fungal-Tree-Insect Interactions (European Community; 2006-2008; Interdisciplinary project with R. Finkeldey, A. Polle, S. Schütz)
- EU-IP Bt-BioNoTa – Effects and mechanisms of Bt transgenes on biodiversity of non-target insects: pollinators, herbivores and their natural enemies (European Community; 2001-2004; Interdisciplinary project with S.Vidal)
- Trace analysis of bioactive compounds by a GC-sectorfield MS (TÜV Hannover, 2002; 200,000 €)
- DFG-Schu 1135/7-1/2 Multidimensional EAG: "Utilisation of selective adaptation of insect antennae for the analysis of complex odour mixtures" (2001-2006; 150,000 €)

Other academic activities:

- Peer reviewer for various funding agencies in Germany, Austria, Sweden, the Netherlands, and the US
- Regular peer reviewer for various journals in the field of entomology, chemical ecology, ecology, sensorics and analytical chemistry

Ten most important publications:

Johne BA, Weissbecker, Schütz S (2007) Volatile emissions from *Aesculus hippocastanum* induced by mining of larval stages of *Cameraria ohridella* influence oviposition by conspecific females. J. Chem Ecol, in press.

Dötterl S, Burkhardt D, Weißbecker B, Jürgens, Schütz S, Mosandl A (2006) Linalool and lilac aldehyde/alcohol in flower scents- Electrophysiological detection of lilac aldehyde stereoisomers by a moth. J Chrom A 1113: 231-238.

Dötterl S, Jürgens A, Seifert K, Laube T, Weißbecker B, Schütz S (2006) Nursery pollination by a moth in *Silene latifolia*: the role of odours in eliciting antennal and behavioural responses. New Phytologist 169: 707-718.

Holighaus G, Schütz S (2006) Odours of wood decay as semiochemicals for *Xyloterus domesticus* L. (Col., Scolytidae). Mitt Dtsch Ges allg ang Ent 15: 161-165.

Weissteiner S, Schütz S (2006) Different volatile pattern influence host plant choice of belowground living insects. Mitt Dtsch Ges allg angew Ent 15: 51-55.

Weißbecker B, Holighaus G, Schütz S (2004) Gas chromatography with mass spectrometric and electroantennographic detection: –analysis of wood odour by direct coupling of insect olfaction and mass spectrometry. J Chromatography A 1056: 209-216.

Schütz S, Weissbecker B (2003) Mechanismen duftvermittelter Pflanze-Insekt Interaktionen: Vom Pflanzenstress zum Insektenfraß. Nova Acta Leopoldina 328: 215-235.

Schroth P, Lüth H, Hummel HE, Schütz S, Schöning MJ (2001) Characterising an insect antenna as a receptor for a biosensor by means of impedance spectroscopy. Electrochimica Acta 47: 293-297.

Schroth P, Weißbecker B, Schütz S, Ecken H, Yoshinobu T, Lüth H, Schöning MJ (2001) Bioelectronic signal processing- Intact chemoreceptors coupled to field-effect devices. Biocybernetics & Bioengineering 21: 27-42.

Schütz S, Weißbecker B, Schroth P, Schöning MJ (2001) Linkage of inanimate structures to biological systems – Smart Materials in biological micro- and nanosystems. In: Hoffmann (ed) Lecture Notes in Computational Science and Engineering (pp.215-221). Springer-Verlag, Heidelberg-New York.

Experience in the supervision of doctoral candidates (S. Schütz)

S. Schütz has over seven year experiences in the supervision of PhD students in the fields of chemical ecology, entomology, biosensorics and plant protection. A total of eight dissertations (three since 2002, one DBU-visiting student) were successfully completed under his guidance.

Participation in PhD-programs:
PhD programme “Wood Biology and Technology”
PhD programme “Forest Sciences and Forest Ecology”
PhD programme “Biodiversity and Ecology”
PhD programme “Environmental Informatics”

Six PhD students of S. Schütz study currently in the program “Forest Science and Forest Ecology” and two PhD students in the programme “Biodiversity and Ecology” and one in “Wood Biology and Technology”. In addition, S. Schütz serves currently in the thesis committees of six PhD students of other institutes (Forest Botany, Wood Biology and Wood Technology) and participated in the past in the thesis committees of three PhD students from the Institute of Forest Botany.

PhD level courses:
Wood Science and Technology (seminar)
Forest Zoology (seminar)
Trace analysis of volatile organic compounds (laboratory practical)
Electrophysiology and sensory ecology of insects (laboratory practical)
Biosensors and Early Warning Systems (lectures with laboratory courses)

International PhD student exchange:
In 2005/2006, a PhD student from Czechia (Brno) worked one year as a DBU-Fellow in the lab of S. Schütz, Currently, one PhD student from China (Beijing) works for one year as a CSC-fellow in the lab of S. Schütz and one PhD student from Italy funded by a EU-exchange grant is guest student for one year in the lab of S. Schütz. In frame of a Lower Saxony-Thai research project, PhD student exchanges will take place from Thailand to Germany and from Germany to Thailand.

Thesis committees abroad:
S.Schütz has served as an external referee for PhD students at the universities of Wageningen and of Helsinki.

PhDs in co-operation with industry:
Currently, two PhD projects are undertaken in collaboration with industrial enterprises.

Supervision of PhD students in Göttingen since 2001:

- Plasil P (2006) Bark beetle management in a spruce forest natural reserve in Czechia (DBU-funded PhD Scholarship)
    - First authorship: 3 original papers (Forest Entomol Manag, Mitt DGaaE)
    - Alexander von Humboldt Grant
- Heiermann J (ongoing) Population structure and biodiversity of nocturnal Macrolepidoptera in mixed beech-spruce stands of different mixing ratios in the Solling region
    - First authorship: 1 original paper (Forest Ecol Manag), 2 further in preparation
- Holighaus G (ongoing) Chemical ecology of wood ageing – spatio- temporal niche formation by wood degrading insects as affected by age and decomposition- specific volatiles of wood
    - First authorship: 3 original papers (J Chrom, Mitt DGaaE), 2 further in preparation
    - 1 book chapter

- Hu J (ongoing) Risk assessment of the Asian Longhorn Beetle (Anoplophora glabripennis) as invasive insect in Europe (CSC-fellow)
- Johne BA (ongoing) Chemical ecology of the interaction of horse chestnut (Aesculus hippocastanum) with biotrophic (Erisyphe flexuosa) and necrotrophic (Guignardia aesculi) fungi and the horse chestnut leaf miner (Cameraria ohridella)
    - First authorship: 3 original papers (J Chem Ecol, Mitt DGaaE), 2 further in preparation
    - 1 patent (PCT)
    - Best poster award at the Forstwissenschaftlichen Tagung, Tharandt, 2006
- Paczkowska M (ongoing) Trace analytical and electrophysiological field examinations on the host plant finding of Macrolepidoptera at forest boundaries associated with Populus and Salix species
    - First authorship: 1 original paper (Mitt DGaaE)
- Thakeow P (ongoing) A biosensor for fungal infestation in wood on the basis of insect olfaction
    - First authorship: 2 original papers (Chem Senses, Mitt DGaaE), one further in preparation
    - 1 book chapter
    - Joung scientist travel award of ECRO 2006
- Vitagliano S (ongoing) Evaluation of biological activity of natural compounds by Electroantennography (EAG) and Single Sensillum Recording (SSR) on lepidopteran and coleopteran antennae and palps (EU-exchange student)
- Vlaic M (ongoing) Volatile pattern released by Arabidopsis thaliana and Brassica napus from root and shoot upon fungal infection and insect feeding
- Weissteiner S (ongoing) Electrophysiological and behavioural analysis of mechanisms during olfactory host plant finding processes in larvae of Melolontha melelontha
    - First authorship: 2 original papers (Mitt DGaaE)

Name: **STOLL, PETER-TOBIAS**

Date of Birth: July 14, 1959
Position: Professor (C3)
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Abteilung Internationales Wirtschaftsrecht und Umweltrecht
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Education and specialization:

1978-1984	Studies in law and political sciences (Hamburg, Lausanne, Bonn)
1984	First State Examination in law, Cologne District Court
1984-1985	Junior research assistant, Institute for International law, University of Kiel
1985-1988	Intership with the Schleswig District Court (Referendarzeit)
1988	Second State Examination, Hamburg District Court
1988-1993	Research Assistant, Institute for International law, University of Kiel
1990-1991	Member of the DFG Graduiertenkolleg on Economics, Technology and Innovation
1992-1993	Member of the DFG Graduiertenkolleg on German, European and International Environmental Law

Academic appointments:

1993-2001	Research fellow, Max-Planck-Institute for Foreign Public and international Law, Heidelberg
1995-2001	Lecturer, University of Heidelberg Law School
1996	Visiting professor, University of Minnesota Law School
2001-	Professor for Public Law and international Law (International Economic Law), Faculty of Law, University of Göttingen Director, Institute for International Law and European Law, Department for International Economic and Environmental Law

Awards and honours:

1995	Best Dissertation Award of the Doctores Iuris Association of the Faculty of Law of Kiel University

Other professional/academic positions:

1996-2000	Member of German delegations in multilateral negotiations concerning the Convention on Biological Diversity, the Cartagena Protocol on Biosafety, the FAO Treaty on Genetic Resouces for Food and Agriculture
2003-2006	Chair, Advisory Board on Biodiversity, Federal Ministry for Food, Agriculture and Cosumer Protection
2006-	German National Committee on Global Change Research (NKGCF)
2006-	Committee on International Law on Biotechnology, International Law Association
2006-	Board, Göttingen Graduate School on Social Sciences.

Key research expertise:

- International and European law, international economic, trade and environmental law, biodiversity and biotechnology law, trade law

Major research funds since 2001 (selection):

- Project A5, Collaborative Research Centre (DFG-SFB 552) on "The Stability of Rainforest Margins in Indonesia" (STORMA), phase III, Member also in phase II. (11,000 €);
- Editorial Project: Max-Planck-Commentaries on World Trade Law, 7. Vols., 2005 - 2008, Martinus Nijhoff Publishers, Leiden, Editor, together with R. Wolfrum. (7,000 €);
- "ProBenefit" - Process-oriented development of a model for equitable benefit-sharing for the use of biological resources in the Amazon Lowlands of Ecuador, research project with four other participants, funded by the Federal German Ministry for Education and Research (BMF) in its programme "Biosphere Research - Integrative and Application-Oriented Model Projects" – BioTEAM (178,000 €);
- Conference, sponsored by the DFG ("DFG-Fachkonferrenz") - "Coalitions of the Willing" - Avantgarde or Threat? Stability and Change in the UN System of Collective Security, the World Trade Order and European Integration, 2005 (4,000 €);
- Völkerrechtsprojekt der Heinrich-Böll-Stiftung, Mai-Juli 2004 (1,800 €);
- German Federal Environment Agency: Assessment of Environmental Impact and Regulation of Carbondioxide Sequestration and Storage in the Seabed (100,000 €).

Other academic activities:

- Peer reviewer for German funding institutions
- Member, Centre for Europeanization and Globalization of the Economy, Faculty of Economics; 2004-
- Dean for Student Affairs, 2004-2007
- Socrates / Erasmus Academic Co-ordinator, Faculty of Law, 2004-
- Member of the Senate Commission for Teaching and Studies, Univ. of Göttingen (2005-2007)
- Member, Ethics Committee, Member, Human Tissue Cell Research Foundation, Regensburg / München (2003-)

Ten most important publications:

Stoll P-T (2007) Global Public Goods - The Governance Dimension, in: Rittberger / Nettesheim et al. (eds.): Changing Patterns of Authority in the Global Political Economy, vol. I: New Institutions and the Provision of Global Public Goods (Basingstoke, New York: PalgraveMacmillan, forthcoming).

Stoll P-T (2005) Die Umwelthaftungsrichtlinie – Ordnungsrecht unter der Flagge der Haftung, in: Reinhard Hendler u.a. (Hrsg.), Festschrift für Volkmar Goetz, Göttingen, S. 485 – 599.

Stoll P-T (2004) Sicherheit als Aufgabe von Staat und Gesellschaft - Staatsordnung, Umwelt- und Technikrecht im Umgang mit Unsicherheit und Risiko, Heidelberger Habilitationsschrift, Tübingen.

Stoll P-T (2004) The FAO „Seed Treaty" – New International Rules for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, Journal of International Biotechnology Law 1, S. 239 – 243.

Stoll P-T (2004) Auf dem Weg zu einer Informationsverfassung: Das Beispiel der Gentechnik, in: Alexander Ruch (Hrsg.), Recht und neue Technologien, Zürich, S. 17 – 47.

Stoll P-T (2003) Indigenous Peoples, their Rights and their Legal Concepts, in: Lewinski (Ed.), Indigenous Heritage and Intellectual Property: Genetic Resources, Traditional Knowledge and Folklore, S. 5 – 65 (with A. v. Hahn).

Stoll P-T, Schorkopf F (2002) WTO, Welthandelsordnung – Welthandelsrecht, Köln et. al. (Chinese translation Beijing 2004, English translation, Leiden, 2006, together with F. Schorkopf).

Wolfrum R, Klepper G, Stoll P-T, Franck SL (2001) Genetische Ressourcen, traditionelles Wissen und geistiges Eigentum im Rahmen des Übereinkommens über die biologische Vielfalt, Münster 2001; reproduced in part in: Von Hahn (ed) Implementing the Convention on Biological Diversity: Submission by the Federal Republic of Germany, Con-

vention on Biological Diversity, UN-Doc. UNEP/CBD/WG-ABS/1/INF/3, 4 October 2001.
Stoll P-T (2000) Gestaltung der Bioprospektion unter dem Übereinkommen für biologische Vielfalt durch international unverbindliche Verhaltensstandards: Hintergründe, Möglichkeiten und Inhalte, *Berichte des Umweltbundesamtes*, Band 4/00, Berlin.
Stoll P-T (1999) Controlling the Risks of Genetically Modified Organisms: The Cartagena Protocol on Biosafety and the SPS Agreement, *Yearbook of International Environmental Law* 10, 82 – 119.

Supervision of PhD students since 2001:

Postgraduate education plays a dominant role in Tobias Stoll's academic activities. He is very active in the faculty's Master programme for foreign students with its many Chinese students, currently advising about 10 students. Moreover, he advises about 20 doctoral students, including about 6, which come from overseas. Nearly half of the projects are supported by research grants or scholarships and applications for funding are encouraged and supported.

Completed Dissertations:

- Foerster (2003) International liability rules for the harmful effects of living modiefied organisms – European and international developments,published: Beiträge für ausländisches öffentliches Recht und Völkerrecht, Springer, Berlin et al. 2007, Bd. 108, 421 S.
- Behrens (2006) Controlling international trade in hazardous substances by multilateral environmental agreements, in print with: Veröffentlichungen des Instituts für Völkerrecht und Europarecht, Carl Heymanns, Köln et al., 2007
- Elfring (2006) „Geistiges Eigentum in der Welthandelsordnung - Auswirkungen des TRIPS-Übereinkommens auf den internationalen Schutz geistigen Eigentums unter besonderer Berücksichtigung der Rechtsdurchsetzung und der Rechtsentwicklung“ [Intellectrual property and the world trade order: the impact of the WTO TRIPs-Agreement on the international protection of intellectual property“, Veröffentlichungen des Instituts für Völkerrecht und Europarecht, Carl Heymanns, Köln et al., 2007
- Hohmuth (2006) Emission trading and industrial pollution licensing – German legal developments and the implementation of the EC directive 2003/87/EG, published: RTW. Schriftenreihe Recht – Technik – Wirtschaft, Carl Heymanns, Köln et al., Bd. 101, 360 S.
- Leifer (2006) The EC Eco-Management and Audit Scheme (EAMS) as a means of self-governance, published: Jus Internationale et Europaeum, Mohr Siebeck, Tübingen, Bd. 12, 209 S.

Dissertations – to be completed in 2007:

- Albites, Trade and investment: The service industry
- Anzellotti, The settlement of Internet disputes and international economic law
- Bode, The Development of the German Foreign Cultural Policy
- Conrad, Cultural Diversity and World Trade
- Keerl, International transfer pricing in a globalized economy -legal problems and possible solutions
- Steinmann, Implementation and enforcement in the WTO – An analysis of Art. 21 DSU
- Von Einem, Ring tones for mobiles and copyright – a study on the structures of international copyright organizations
- Zech, Human tissue collections for research and therapy – the legal framework

Name: **TSCHARNTKE, TEJA**

Date of Birth: July 13th, 1952
Position: Professor (C4)
Address: Abt. Agrarökologie
Department für Nutzpflanzenwissenschaften,
Universität Göttingen, Waldweg 26
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Education and specialisation

1973-1981	Studies in sociology and biology at the universities Marburg & Gießen
1978	Diploma (MSc) in Sociology, University of Marburg
1981	Diploma (MSc) in Biology, University of Marburg
1986	PhD in Biology, University of Hamburg
1992	Habilitation in Zoology, University of Karlsruhe

Academic appointments

1985-1992	Postdoc and Assistant Professor, Dept. of Zoology, Univ. of Karlsruhe
since 1993	Head of the Agroecology Research Group at the University of Göttingen, Faculty member in Agriculture and Biology
1992	Offer of three tenure professor positions: C4 ecology (Hamburg), C3 zoology (Gießen), C4 agroecology (Göttingen)

Other professional/academic positions:

since 1994	Member of the Managing Board of the Göttingen Centre for Nature Conservation organizing multidisciplinary education (Biology, Forestry, Agriculture, Geo sciences)
1996-2004	Member of the Editorial Board of Oecologia,
2000-2006	Member of the Editorial Board of the Journal of Applied Ecology
since 2000	Editor-in-Chief of Basic and Applied Ecology
since 2000	Speaker and coordinator of the study branch “Resource management” of the Faculty of Agriculture (Göttingen)
since 2002	Member of the governmental scientific board for biodiversity and genetic resources (Federal Ministry of Agriculture, BMVEL)
since 2002	Member of the Editorial Board of Entomologia Experimentalis et Applicata
since 2004	Speaker of the Collaborative Research Centre STORMA (“Stability of Rainforest Margins in Indonesia”) of the German Science Foundation (DFG SFB 552)
since 2007	Member of the Managing Board of the Göttingen Centre for Biodiversity and Ecology

Key research expertise

- Biodiversity-ecosystem functioning relationships (predation, parasitism, pollination)
- Patterns and processes at different spatiotemporal scales (local vs. landscape scales; GIS and geostatistics), habitat fragmentation, spatial ecology
- Comparison of tropical and temperate communities and trophic interactions (plants, herbivores, predators) in managed vs. natural ecosystems
- Quantified food web interactions and multitrophic interactions (below- and aboveground and plant-pathogen-pollinator-herbivore-enemy interactions).
- Multidisciplinary studies linking socioeconomic and ecological approaches

Major research funds since 2001 (selection):

- Dependence of plant-herbivore-parasitoid interactions in oilseed rape (Brassica napus) on the composition of agricultural landscapes (DFG, 1999-2001, 80,000 €)
- Insects and pathogens as antagonists of Creeping Thistle (Cirsium arvense) (DFG, 2000-2003, 90,000 €)
- Interactions among plants, butterflies and parasitoids on fragmented calcareous grasslands (DFG, 2000-2003, 123,000 €)
- Effects of land-use on insect diversity and plant-insect interactions (DFG SFB 552 STORMA; project C3, 2000-2009, 788,000€; project Z4 2006-2009, 1,700,000 €)
- Biodiversity and spatial complexity in agricultural landscapes under Global Change (BIOPLEX) (BMBF BIOLOG, 2000-2009, 600,000€).
- Evaluating current European agri-environment schemes to quantify and improve nature conservation efforts in agricultural landscapes (EU-EASY, 2002-2006, 330,000 €)
- Evaluation of biodiversity of land-use systems in a mega-diverse region of Ecuador (Bio-Sys) (BMBF BIOTEAM, 2003-2006, 300,000 €)
- Interactions among cereal aphids and their natural enemies in relation to landscape composition, field management and weed density (DFG 2003-2005 145,000 €)
- Effects of habitat fragmentation on the dispersal and reproduction capacity of a specialised insect species (DFG, 2003-2005, 208,000 €)
- Assessing large-scale environmental risks with tested methods (EU-ALARM, 2004-2009, 500,000 €)
- Insect communities in the canopies of deciduous forests differing in tree species richness: biodiversity and multitrophic interactions (GK 1086, 2006-2011, 125,000 €)
- Survival of natural enemy populations in simple and complex landscapes (Marie-Curie grant and DFG, 2006-2009, 140,000 €)
- Agricultural policy-induced landscape changes: effects on biodiversity and ecosystem services (AGRIPOPES) (DFG-ESF, 2006-2009, 190,000€)
- Biotic Ecosystem Services (BESS) (Helmholtz Young Investigator Group of Dr. Carsten Dormann, 2006-2011, in Göttingen: 625,000 €)

Ten most important publications:

Steffan-Dewenter I et al. (2007) Tradeoffs between income, biodiversity, and ecosystem functioning during tropical rainforest conversion and agroforestry intensification. PNAS (in press).

Tylianakis JM, Tscharntke T, Lewis OT (2007) Habitat modification alters the structure of tropical host-parasitoid food webs. Nature 445: 202-205.

Tylianakis JM, Tscharntke T, Klein AM (2006) Diversity, ecosystem function, and stability of insect natural enemies across a tropical gradient of habitat modification. Ecology 87: 3047-3057.

Tscharntke T, Klein AM, Kruess A, Steffan-Dewenter I, Thies C (2005) Landscape perspectives on agricultural intensification and biodiversity-ecosystem service management. Ecol. Letters 8: 857-874.

Krauss J, Schmitt T, Seitz A, Steffan-Dewenter I, Tscharntke T (2004) Effects of habitat fragmentation on the genetic structure of the monophagous butterfly *Polyommatus coridon* along its northern range margin. Molecular Ecol. 13: 311-320.

Klein A, Steffan-Dewenter I, Tscharntke T (2003) Fruit set of highland coffee increases with the diversity of pollinating bees. Proc. Roy. Soc. London B 270: 955-961.

Tscharntke T, Steffan-Dewenter I, Kruess A, Thies C (2002) Contribution of small habitat fragments to conservation of insect communities of grassland-cropland landscapes. Ecological Applications 12: 354-363.

Steffan-Dewenter I, Tscharntke T (2000) Butterfly community structure in fragmented grasslands. Ecology Letters 3: 449-456.

Thies C, Tscharntke T (1999) Landscape structure and biological control in agroecosystems. Science 285: 893-895.

Kruess A, Tscharntke T (1994) Habitat fragmentation, species loss, and biological control. Science 264: 1581-1584.

Experience in the supervision of doctoral candidates (T. Tscharntke)

T. Tscharntke has twenty years of experience in the supervision of PhD students in the field of ecology. A total of 25 dissertations (15 since 2001, one visiting Marie-Curie student) were successfully completed under his guidance.

Participation in PhD programs:
PhD program of the Göttingen Centre for Biodiversity and Ecology
PhD program "Agriculture and Environment" (DFG-GK)
PhD program "The role of biodiversity for biogeochemical cycles and biotic interactions in temperate deciduous forests" (DFG-GK)

T Tscharntke serves in thesis committees of the Göttingen Centre for Biodiversity and Ecology and in several individual committees of graduate students from different departments.

PhD level courses:
Ecology (seminar)
Biological control and Biodiversity (lecture, seminar, practical course)
Hymenoptera (lecture, seminar, practical course)
Ecology projects (practical course)
Scientific writing (lecture, seminar, practical course)

International PhD student exchange
Within the EU Integrated projects EASY and ALARM (see above), several students form other European countries came for a visit, in particular to learn from our approaches with digitized landscapes, geostatistics and trap nests. Indonesian students came for a visit within our Collaborative Research Centre STORMA (see above). Students from the Göttingen agroecology group visited statistical courses in England (Silwood Park), ecology courses in the Netherlands (Wageningen) and tropical ecology courses in Costa Rica.

Thesis committees abroad:
T. Tscharntke has served as an external referee (opponent) for a PhD student at Uppsala University (Sweden) and for two PhD students at Wageningen University (The Netherlands). Many contacts exist on a voluntary advisory level, in particular within our big collaborative project (DFG-SFB) STORMA in Indonesia.

Supervision of PhD students since 2001:
- Thiessen S (2001) Interaction between black alder trees and alder leaf beetles: signal transfer among trees and induced resistance
    - Publications: Biochem Syst Ecol
- Kluth S (2002) Interactions between the Creeping Thistle (*Cirsium arvense*), pathogens and phytophagous insects: foundations for biological weed control
    - Publications: J Appl Ecol, Oecologia, J Appl Ecol, book chapter (Springer), Weed Res
- Krauss J (2003) Effects of habitat fragmentation and landscape context on butterflies and plants
    - Publications: J Biogeogr, Oecologia, Mol Ecol, Biodiv Conserv, Biol Conserv, Ecography
- Bürger C (2004) Effects of landscape composition on bee diversity and pollination at different spatial scales
    - Publications: Ecology
- Westphal C (2004) Bumblebees in agricultural landscapes: resource use, colony growth and foraging times
    - Publications: Ecol Letters, Ecol Entomol, Oecologia
- Schmidt M (2004) Spiders in agricultural landscapes and the biological control of cereal aphids

    - Publications: Proc Roy Soc London B, book chapter (CSIRO Press), Ent Exp Appl, Biol Conserv, Agric Ecosyst Environm, J Appl Ecol, J Biogeogr, J Arachnol
- Klein AM (2003) Bees, wasps and their natural enemies in coffee systems of Sulawesi: pollination success, interactions and habitat evaluations
    - Publications: Conserv Biol, Biodiv Conserv, Am J Bot, Proc Roy Soc London B, J Appl Ecol, J Anim Ecol, Ecol Letters, J Anim Ecol, book chapter (Univ Chicago Press)
- Poveda K (2005) Multitrophic plant-insect interactions in dependence on belowground processes
    - Publications: Oecologia, Oikos, Persp Evol Ecol Syst, Agric Ecosyst Environm, book chapter (Cambrdge Univ Press)
- Roschewitz I (2005) Farming systems and landscape context: effects on biodiversity and biocontrol
    - Publications: Agric Ecosyst Environm, Agric Ecosyst Environm, J Appl Ecol, Proc Roy Soc London B, Agric Ecosyst Environm, J Appl Ecol
- Bos MM (2006) Insect diversity and trophic interactions in shaded cacao agroforestry and forests in Indonesia
    - Publications: Book chapter (Springer), Agric Ecosyst Environm, Biodiv Conserv, PNAS
- Veddeler D (2006) Bees, wasps and their parasitoids in traditional coffee agroforests: community patterns and ecosystem services
    - Publications: Ecol Appl, Biodiv Conserv, Oikos
- Lozada T (2006) Plant communities in land-use systems of coastal Ecuador: diversity patterns, endemism, and species turnover at the landscape scale
    - Publications: Persp Evol Ecol Syst,
- Holzschuh A (2006) Bees and wasps in agricultural landscapes: effects of dispersal corridors and land-use intensity at multiple spatial scales
    - Publications: Ecol Letters, J Appl Ecol, J Appl Ecol, J Appl Ecol
- Gabriel D (2006) Plant communities in organic and conventional agriculture - comparing local, landscape and regional effects
    - Publications: Persp Evol Ecol Syst, J Appl Ecol, Ecol Letters, Ecol Appl, J Appl Ecol, Agric Ecosyst Environm, J Appl Ecol
- Clough Y (2006) Local and large scale determinants of biodiversity in winter wheat fields
    - Publications: J Biogeogr, Ecol Letters, J Arachnol, J Appl Ecol, Agric Ecosyst Environm, J Appl Ecol
- Tylianakis J (2006) Spatiotemporally-mediated effects of land use on the biodiversity of cavity-nesting Hymenoptera in coastal Ecuador
    - Publications: Ecology, Nature, Ecology, Ecol Letters, J Biogegr, Agroforest Syst, book chapter (CABI Publ),
- Klinge K (2006) Plant-herbivore-parasitoid interations on dog rose species and their hybrids along a geographic gradient

Currently, there are 13 more PhD theses underway under the supervision of Teja Tscharntke.

Name: **VELDKAMP, EDZO**

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Position: Professor (C3)
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Education and specialization:

1983-1989	Studies in Agricultural and Environmental Sciences (Univ. Wageningen)
1989	Ingenieur (MSc.) (majors in Soil genesis and Ecopedology, Soil Inventarisation and Landevaluation, Geomorphology)
1993	Dr. in Environmental Sciences, Univ. Wageningen

Academic appointments:

1993-1996	Postdoc International Institute of Tropical Forestry, US Forest Service, Puerto Rico (Soil Biogeochemistry)
1996-1997	Postdoc Complex Systems Research Centre, Univ. of New Hampshire, Durham NH, USA (Soil Biogeochemistry)
since 1997	Full professorship (C3) in Ecopedology of the Tropics and Subtropics, Univ. of Göttingen

Awards and honours:

1997	Akademie Onderzoeker Award (Royal Dutch Academy of Sciences, NL)

Other professional/academic positions:

2001-2003	Dean of academic affairs, Faculty of Forestry, Univ, Göttingen
since 2005	Member of the Editorial Board of Basic and Applied Ecology
2006	External advisor to the Swedish Research Council for Scientific Excellence Centres
since 2006	Vice-speaker SFB 552 (Stability of Rainforest Margins)

Key research expertise:

- Soil functions in tropical and subtropical forest ecosystems (water, carbon and nutrient dynamics)
- Global change effects on tropical soils (Trace gas emissions, C sequestration, N deposition)
- Ecopedology of deeply weathered soils in the humid tropics
- Soil carbon and nutrient dynamics in tropical agroforestry systems
- Effects of soil characteristics on plant diversity in the tropics

Major research funds since 2001 (selection):

- Soil trace gas fluxes from tropical montane forest soils (Ve 219/8-1;Forschergruppe 816, TP A24; DFG 2007-2010; 226,000 € shared with H. Flessa)
- Carbon dioxide production in soils under cacao agroforestry and natural forests: effects of drought and landscape variability (Sonderforschungsbereich 552, TP B6; DFG 2006-2009; 162,750 €)
- Quantifying the internal soil nitrogen cycle to evaluate the nitrogen status of humid tropical forests. (Ve 219/7-1,2; DFG 2005-2007; 157,000 €)
- Mechanisms of soil organic carbon stabilization following land use conversion in the humid tropics. (Ve 219/6-1,2; DFG 2004-2006; 125,800 €)

- BIOSYS: Monetary valuation of biodiversity of land use systems in a mega-diverse Region of Ecuador (Chocó-Manabí). (01LM0209; BMBF 2003-2005; 942,000 €, shared with R. Olschewski and T. Tscharntke)
- LBA-CARBONSINK-The fate of assimilated carbon in the soil. (XEU EVK2-CT-1999-00023; EU 2001-2002; 174,000 € shared with M. Worbes)

Other academic activities:
- Peer reviewer for various funding agencies in Germany, Sweden, the Netherlands and the US
- Regular peer reviewer for various journals in the field of soil science, soil biogeochemistry, global change, agroforestry

Ten most important publications:

Sotta ED, Veldkamp E, Schwendenmann L, Guimarães B, Paixão RK, Meir P, Ruivo ML, Costa AC (2007) Effects of an induced drought on soil CO_2 efflux and soil CO_2 production in an Eastern Amazonian rainforest, Brazil. Global Change Biology, in press.

Purbopuspito J, Veldkamp E, Brumme R (2006) Trace gas fluxes and nitrogen cycling along an elevation sequence of tropical montane forests in Central Sulawesi, Indonesia. Global Biogeochemical. Cycles 20, GB3010.

Schwendenmann L, Veldkamp E (2006) Long-term CO_2 production from deeply weathered soils of a tropical rain forest: evidence for a potential positive feedback to climate warming. Global Change Biology 12, 1-16.

López-Ulloa M, Veldkamp E, de Koning GHJ (2005) Soil carbon stabilization in converted tropical pastures and forests depends on soil type. Soil Science Society of America Journal 69: 1110-1117.

Powers JS, Veldkamp E (2005) Regional variation in soil carbon and δ13C in forests and pastures of northeastern Costa Rica. Biogeochemistry 72: 315-336.

Schwendenmann L, Veldkamp E (2005) The role of dissolved organic carbon, dissolved organic nitrogen and dissolved inorganic nitrogen in a tropical wet forest ecosystem. Ecosystems 8: 339-351.

de Koning GHJ, Veldkamp E, López-Ulloa M (2003) Quantification of carbon sequestration in soils following pasture to forest conversion in north-western Ecuador, Global Biogeochemical Cycles 17(4): 1098.

Veldkamp E, Becker A, Schwendenmann L, Clark DA, Schulte-Bisping H (2003) Substantial labile carbon stocks and microbial activity in deeply weathered soils below a tropical wet forest. Global Change Biology 9: 1171-1184.

Davidson EA, Keller M, Erickson HE, Verchot LV, Veldkamp E (2000) Testing a conceptual model of soil emissions of nitrous and nitric oxides. BioScience 50 (8): 667-680.

Keller M, Veldkamp E, Weitz AM, Reiners WA (1993) Effect of pasture age on soil trace-gas emissions from a deforested area of Costa Rica. Nature 365: 244-246.

Experience in the supervision of doctoral candidates (E. Veldkamp)

E. Veldkamp has nine years of experience in the supervision of PhD students in the fields of soil science, ecopedology, soil ecology. Since 2002 a total of six dissertations were successfully completed under his direct guidance.

Participation in PhD-programs:
PhD program “Biodiversity and Ecology”
PhD program “Forest Sciences and Forest Ecology”

Currently, two PhD students of E. Veldkamp study in the program “Forest Sciences and Forest Ecology” and three PhD students study in the program “Biodiversity and Ecology”. In addition, E. Veldkamp serves currently in the thesis committees of five PhD students of other institutes (Ecology and Ecosystem Research, Tropical Silviculture).

PhD level courses:
Ecopedology (seminar)
Soil microbial processes (laboratory practical)

International PhD student exchange:
In 2002, a PhD student from the USA (Duke University, NC) worked four months in the lab of E. Veldkamp.

Thesis committees abroad:
E. Veldkamp has served as an external referee for a PhD student at University of Amsterdam and the University of Utrecht. Experiences with a curricular PhD system were obtained from supervising a PhD student at Wageningen University.

Supervision of PhD students since 2001:

- Dechert G. (2003) Nutrient fluxes and their control in land use systems of forest margins. First authorship: 2 original papers (Plant and Soil, Nutrient Cycling in Agroecosystems); co-author: 1 original paper (Soil Science Society of America Journal)
- Schwendenmann L. (2003) Climate dependence of below-ground carbon dynamics in undisturbed tropical forest soils. First authorship: 3 original papers (Biogeochemistry, Ecosystems, Global Change Biology)
- Paul S. (since 2004) Mechanisms of soil organic carbon stabilization following land use conversion in the humid tropics. First authorship: 1 original article (Soil Science Society of America Journal)
- Arnold J. (since 2005) Quantifying the internal soil nitrogen cycle to evaluate the nitrogen status of humid tropical forests
- Haileslassie A. (2005) Nutrient balances in land use systems of Ethiopia. First authorship: 3 original paper (Agricultural, Ecosystems and Environment, Nutrient Cycling in Agroecosystems, Agricultural Systems)
- López-Ulloa R.M. (2005) Evaluation of the CO_2 sequestration potential of afforestation projects and secondary forests in Ecuador. First authorship: 1 original article (Soil Science Society of America Journal); co-author: 2 original papers (Global Biogeochemical Cycles, Ambio)
- Pubopuspito J. (2005) Gaseous losses of nitrogen in montane forests and agroecosystems of forest margins in Indonesia. First authorship: 1 original article (Global Biogeochemical Cycles)
- Doff-Sotta E. (2006) Carbon and Nitrogen Dynamics in an eastern Amazonian Rainforest. First authorship: 2 original articles (Forest Ecology and Management, Global Change Biology)
- Van Straaten O. (since 2006) Carbon dioxide production in soils und cacao agroforestry and natural forests: effects of drought and landscape variability

- Martinson G. (since 2007) Dependence of soil-atmosphere N_2O, NO and CH_4 fluxes on tree diversity and productivity through soil N- and P-availability
- Mekuria W. (since 2007) Effectiveness of exclosures to restore degraded soils as a result of overgrazing in Tigray, Ethiopia. First authorship: 1 original article (Journal of Arid Environments)

Name: **VIDAL, STEFAN**

Date of Birth: June 1st, 1950
Position: Professor (C3)
Address: Agrarentomologie
Department für Nutzpflanzenwissenschaften
Universität Göttingen, Grisebachstrasse 6,
D-37077 Göttingen, Germany
Phone: +49-551 399744
Fax: +49-551 3912105
Email, web: svidal@gwdg.de,
http://wwwuser.gwdg.de/~instphyt/institut/mitarbeiter-d.htm

Education and specialization:

1975-1982	Studies in Biology (University Marburg and Hamburg)
1982	Diploma in Zoology (Focus Entomology)
1988	PhD in Biology (Animal Ecology) in Hamburg (supervisor Prof. R. Abraham)
1996	Habilitation in Horticultural Sciences, Hanover University

Academic appointments:

1987-1990	Scientific employee at Department of Biology, Hamburg University
1997–1999	Full professorship in applied ecology (C3), Giessen University
since 1999	Full professorship in Agricultural Entomology (C3), University of Göttingen

Other professional/academic positions:

since 2000	Neotrop. Fauna Environ.)
since 2003	Member of Editorial Board (Basic Appl. Ecol.)
since 2004	Co-Editor in Chief of Journal of Applied Entomology
since 2005	Member of Editorial Board (J. Plant Dis. Plant Prot.)

Key research expertise:

- Multitrophic interactions between plants, microorganisms and herbivorous insects
- Biological control of agricultural pests
- Diversity of endophytic fungi and induced plant responses
- Ecology of parasitic Hymenoptera
- Taxonomy of Chalcidoidea

Major research funds since 2001 (selection):

- Collaborative Research Group (BMBF): Methodenentwicklung für ein anbaubegleitendes Monitoring von GVP im Agrarökosystem (2001-2004; 260,400 €)
- Collaborative Research Group (EU Thematic Network) Exploitation of aphid monitoring in Europe to improve observation and prediction of global change impacts on terrestrial ecosystems (2000-2003; 3,600 €)
- Collaborative Research Group (BMBF): Biodiversität und räumliche Komplexität in Agrarlandschaften unter Global Change; Teilgebiet Phytopathologie (BIOPLEX; 2000-2003; 137,250 €)
- Collaborative Research Group (EU) Effects and mechansisms of Bt transgenes on biodiversity of non-target insects: pollinators, herbivores and their natural enemies (Bt-BioNoTa; 2000-2003; 220,180 €)
- Collaborative Research Project (CIP Lima, Peru) Managing the potato weevil: A low-cost strategy to enhance food security for poor families in the Andes (2002-2005; 17,300 €)
- Collaborative Research Group (EU): Harmonise the strategies for fighting Diabrotica virgifera virgifera (2006-2008; 139,400 €)

- DFG Forschergruppe: Analyse der systemischen Wirkung von Infektionen wurzelbürtiger Pilze auf ausgewählte Brassicaceen unter Berücksichtigung von multitrophen Interaktionen mit Insekten und mikrobiellen Pathogenen (2005-2007; 12,000 €)
- Collaborative Research Group (BMBF): Freisetzungsbegleitende Sicherheitsforschung transgener Maissorten mit neuen Bt-Genen (SiTraMaisBt): Entwicklung und Validierung von Monitoringmethoden (2006-2008; 264,200 €)

Other academic activities:
- Co-ordinator of the EU project DIABROTICA (Threat to European maize production by the invasive quarantine pest, Western Corn Rootworm (Diabrotica virgifera virgifera):a new sustainable crop management approach)(2000-2003)
- Member of the German Commission for Biological Safety (since 2003)
- Convenor of the IOBC/Wprs working group on Integrated protection of field vegetables (2000-2004)
- Member of the evaluation panel for the Leibnitz Gemeinschaft (2005 ZALF; 2006 ZFMK)
- Member of the steering committee for the Swiss National Science Foundation, NRP 59

Ten most important publications:

Roßbach A, Löhr B, Vidal S (2006) Does a specialist parasitoid adapt to its host on a new host plant? Journal of Insect Behavior, DOI: 10.1007/s10905-006-9040-5.

Vidal S (2005) The history of Hymenopteran parasitoid research in Germany. Biological Control 32 (1), 25-33.

Moeser J, Vidal S (2005) Does plasticity in adult feeding behaviour facilitate the invasion of Europe by the maize pest Diabrotica virgifera virgifera? Entomologica Experimentalis et Applicata 114 (1), 55-63.

Roßbach A, Löhr B, Vidal S (2005) Generalism versus specialism: Responses of Diadegma mollipla (Holmgren) and Diadegma semiclausum (Hellen), to the host shift of the diamondback moth (Plutella xylostella L.) to peas. Journal of Insect Behavior 18 (4), 491-503.

Jallow MFA, Dugassa-Gobena D, Vidal S (2004) Indirect interaction between an unspecialized endophytic fungus and a polyphagous moth. Basic and Applied Ecology 5 (2): 183-191.

Kassa A, Stephan D, Vidal S, Zimmermann G (2004) Production and processing of *Metarhizium anisopliae* var. *acridum* submerged conidia for locusts and grasshoppers control. Mycological Research, 108: 93-100.

Moeser J, Vidal S (2004) Do alternative host plants enhance the invasion of the maize pest Diabrotica virgifera virgifera (Coleoptera: Chrysomelidae, Galerucinae) in Europe? Environmental Entomology 33 (5), 1169-1177.

Moeser J, Vidal S (2004) Response of larvae of invasive maize pest *Diabrotica virgifera virgifera* (Coleoptera: Chrysomelidae) to carbon/nitrogen ratio and phytosterol content of European maize varieties. Journal of Economic Entomology 97 (4), 1335-1341.

Dagg JL, Vidal S (2003) Facultative adjustment of the sex ratio and kin competition in aphids. Behavioural Ecology and Sociobiology 55(3): 231-235.

Tscharntke T, Vidal S, Hawkins BA (2001) Parasitoids of grass-feeding chalcid wasps - a comparison of German and British communities. Oecologia 129, 445-451.

Experience in the supervision of doctoral candidates (S. Vidal)

S. Vidal has over 15 years experience in the supervision of PhD students in the fields of agricultural entomology, transgenic plant evaluation, mycology, and multitrophic interactions.

Participation in PhD-programs:
International PhD Program for agricultural sciences (IPAG)
Summer School Integrated Resource management in the tropics, GAUG 2006

PhD level courses:
Biological control and Biodiversity (lectures, seminar and practical courses)
Nematology (seminar and practical course)
Methods in Applied Entomology (seminar and practical courses)

International PhD student exchange:
Since 2001 students from Egypt, China, Myanmar, Serbia, Nigeria, Cameroon, Benin, Jordania, and Syria, respectively, have been in the group of S. Vidal, either actually working on their PhDs or successfully completing their PhDs. A regular student exchange program is running with Plovdiv University, Bulgaria.

Thesis committees abroad:
S. Vidal has served as an external referee for PhD students at the International Centre of Insect Physiology and Ecology – ICIPE (Nairobi, Kenya) and the
International Institute of Tropical Agriculture – IITA (Cotonou, Benin)

PhDs in co-operation with industry:
Currently, two projects are running with regard to transgenic plants in co-operation with Monsanto and Pioneer Companies.

Supervison of PhD students since 2001:

- J. Leopold: Einfluß verschiedener Brache- und Einsaatstreifen im Winterweizen auf Abundanz und Verhalten von Laufkäfern sowie den Blattlausbefall
- H. Veenker: Untersuchungen zur Überwachung der Initialbesiedlung und Abundanzdynamik der Getreideblattläuse mit Hilfe von Saugfallenfängen
- T. Breuer: Auswirkungen einer gegen Heterodera schachtii resistenten Zuckerrübensorte auf die Einwandung der Larven in die Wurzel, Männchenanzahl und deren Körperlänge sowie auf pilzliche Parasiten des Nematoden
- K.-H. Hasken: Der Einfluß von Extensivierung auf das Auftreten von Gtreideblattläusen und ihre natürlichen Gegenspieler im Winterweizen
- N. El-Wakeil: New Aspects of Biological Control of *Helicoverpa armigera* in Organic Cotton Production
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Education and specialization:

1975-1982	Studies in Biology (University Marburg and Hamburg)
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- T. Breuer: Auswirkungen einer gegen Heterodera schachtii resistenten Zuckerrübensorte auf die Einwandung der Larven in die Wurzel, Männchenanzahl und deren Körperlänge sowie auf pilzliche Parasiten des Nematoden
- K.-H. Hasken: Der Einfluß von Extensivierung auf das Auftreten von Gtreideblattläusen und ihre natürlichen Gegenspieler im Winterweizen
- N. El-Wakeil: New Aspects of Biological Control of *Helicoverpa armigera* in Organic Cotton Production
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- I. Steinbrecher: Effects of BT transgenes on herbivorous insect-parasitoid interactions
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- F. Muller: Asessing the ecological host range of different Ceutorhynchinae-parasitoid associations and their potential for classical biological control of the Cabbage Seedpot Weevil in Canada