Newsletter

DFG Research Unit 816:
Biodiversity and Sustainable Management of a Megadiverse Mountain Ecosystem in Southern Ecuador

2/2008

Contents

Speaker's Corner

Movies about our Projects

The Research Unit (RU) is part of the Science TV of the German Research Foundation (DFG) in which extraordinary research projects are presented in short films in the internet. The raw movie of the final chapter twelve was delivered to the DFG mid of April and with this, our RU has fulfilled its contractual obligations. This finalizes an exhausting process which occupied a lot of research time of several persons - speakers, technician, station managers, etc. - over the last three months. To date, we have written approximately 70 pages of story board texts and shot more than 600 minutes of footage which is now to be condensed to 36 minutes by the producer team led by Peter Prestel, split into twelve 3-minute spots.

We would like to thank all project members who actively contributed to this process, especially as actors and reviewers of story board texts. The DFG-Science TV Web page was officially inaugurated on April 15th 2008 by the president of the DFG Professor Matthias Kleiner in Berlin. Relevant press releases are: www.dfg.de/aktuelles_presse/pressemitteilungen/2008/presse_2008_15.html and www.dfg.de/aktuelles_presse/reden_stellungnahmen/2008/sciencetv_080415.html.

Since the inauguration ceremony new chapters are added on a weekly basis. Regardless of the generally good idea of the project we must stress that the often attritional debates regarding scene selection and text passages not always ended to our entire satisfaction. However, the producers were accredited with boundless editorial freedom

by the DFG so that our influence on the shape of the final product was fairly limited. An evaluation meeting at the end of the pilot phase is scheduled for June 24th 2008 in Bonn where all involved parties will discuss achievements and setbacks. One major issue will be the decision on a possible continuation of the project and the transition to an operational product. To be able to discuss on a sound knowledge basis with regard to the opinion of the RU members a questionnaire was distributed by e-mail. We like to encourage all RU members to re-submit the filled form to the RU office right in time before the evaluation meeting.

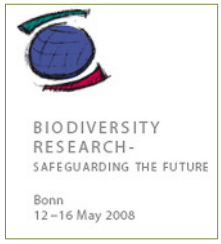
Start of the third episode of the films presented in the DFG Science TV program at: http://dfg-science-tv.de. The RU is one out of the ten projects chosen by the DFG to display the "fascination of research".

The RU in the public

A brochure has been produced by the DFG information management section describing six collaborative research projects on biodiversity related subjects. One of them is our Research Unit. The focus of our presentation is on functions of biodiversity in our ecosystem "Reserva Biologíca San Francisco" (RBSF). The brochure shall be presented at the COP9 in May and is written in German and English. The text was produced by a biologically trained writer in collaboration with the speakers of our RU. Together with the text proposal a selection of photographs have been submitted which have been collected from several recent or former employees of the RU. We take permission for potential publication of the one or other photo by the DFG for granted.

In the context of biodiversity research, our RU will also be presented at the Plaza of Biodiversity in the quarter of the COP9 around the Maritim Hotel in Bonn. A representative of our Ecuadorian co-workers - Ignacio Burneo from Franz Makeschin's group - will be introduced as a commented stele in context with a summary of our research programme. The exhibition stand includes a poster area displaying different biodiversity projects (Jena-experiment, STROMA, exploratories etc.). A short text block was prepared by the advertising agency Scholz & Friends in collaboration with the speakers of the RU. Florian Werner will partly guide the stand, together with colleagues from the other exposed projects. The movies produced by the DFG-Science TV project by then will also be presented.

Finally, at the PreCOP9 conference "Biodiversity research - safeguarding the future" (www.precop9.org) Erwin Beck will present German collaborative long-term projects into biodiversity issues, and our RU will be one of them.



Access and Benefit Sharing

A working group of the DFG on ABS issues (Access and Benefit Sharing) has produced guidelines for the conduct and application, respectively, of biodiversity related research projects. The focus is on research in countries rich in biological diversity which are mainly tropical countries. A major intention of that juridical complicated matter is the differentiation between monetary and non-remuneration projects in basic biodiversity research. These guidelines will be presented to the COP9 and shall be included in the general DFG guidelines for grant application. The deputy speaker of RU spent a lot of time for that venture.

Future Milestones

We hope that with the end of May our manifold public relations activities will come to an end for the first phase of the RU. This is important to press ahead with our scientific work and to augment publication activity, also in the field of joint high-ranked papers. Our next milestones in presenting our scientific results will be the ATBC-GTÖ conference in Suriname (June 9-13) and our annual status symposium (September 11-12) in Loja. The preparations for the status symposium on site are already in progress. As in the last years, we will apply for an additional DFG funding. More information will be distributed by e-mail some time soon.

Jörg Bendix
Speaker of the Research Unit
Erwin Beck
Deputy Speaker of the Research Unit

News from the ECSF

Estación Científica San Francisco

Road Construction

The road Loja-Zamora is still under construction. Recently the newspapers stated that in May 2008 they will start to pave over with concrete instead of using asphalt. This work will last until May 2009. It is also written that they like to reach Sabanilla until this date. That means that we will experience delays during travels from and to Loja in the future.

Export Permission

The way to get export permissions from Environmental Ministry for samples was changed: In the future the Ecuadorian counterpart has to propose the application and will be responsible for deposit and the return of the samples from Germany. From now on the person who will take the samples to Germany also has to indicate the sample at the office of the Environmental Ministry.

New Lab

NCI and the Research Unit will develop a plan about joint activities in the reunion room in the new building. A flexible partition wall offers the opportunity to divide the room into working places and a smaller reunion room temporally.

New Driver

From mid of May we will have a third driver. We received more than 30 applications and are now selecting the person who will meet our requirements best.

Internet

End of April our internet provider installed a new satellite modem and antenna. We are connected to another satellite now. Still we are in a testing phase to see how it is going to work. If there will be no considerable improvement of the data rate compared to the system used so far we will change the provider.

New Drying Ovens

We spend some money from the central project to buy two urgently required drying ovens of the same type we already have. Therefore we are able to use the double space now.

Infrastructure Improvements at NCI

NCI agrees to install ventilation shafts in the multiple bedrooms and bedrooms without windows to the outdoor and find counteractions against mould in the sleeping rooms. Also all sponge rubber mattresses will be replaced by higher quality ones. To save energy motion detectors will be installed in the Research Station. NCI and the RU will share the costs of a second night guard. Since ECSF is quite occupied and the kitchen personnel is overworked NCI wants to employ a third chef.

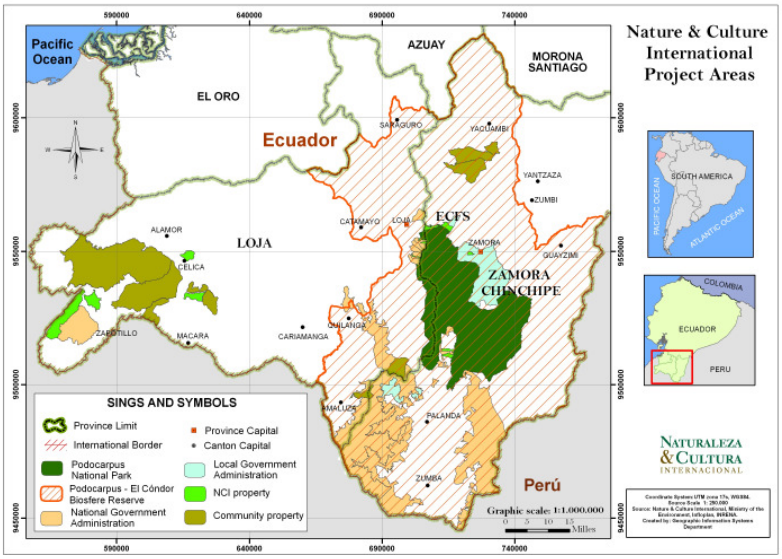
Felix Matt & Jörg Zeiliger,
Local Advisory Board

News from NCI

Putting Science into Applications

In the last Newsletter the newly hired forest expert, Helmut Sonnert, was introduced. He is co-financed from Nature and Culture International (NCI) and the “Centrum für Internationale Migration und Entwicklung” (CIM).

One of Sonnert’s tasks is to develop and integrate the findings of scientific research into real-world applications. He therefore asks all members of the RU to survey their findings and check whether they may be applicable for regional planning guidelines, state ordinances, rules for the sustainable management of natural resources etc. “All good ideas are very welcome”, Sonnert calls on the scientists of the RU. In order to visualize the projects of NCI, Sonnert describes the organization in the box below. Please e-mail your ideas to Dipl. Fowi. Helmut Sonnert and/or Felix Matt at hsonnert@naturalezaycultura.org and fxmatt@web.de.



In the eastern Andean and Amazonian regions NCI works in the areas of the Podocarpus – El Condor Biosphere Reserve, the Podocarpus National Park, and in various smaller protected areas. In the west NCI works in various protected areas of the tumbesian dry forest.

What does Nature and Culture International do?

Nature & Culture International (NCI) is a non-governmental organization whose mission is to assist in the conservation of biological and cultural diversity. It was created when the first scientific program of the German Research Foundation (DFG) at the Estación Científica San Francisco (ECSF) was launched in 1997 and was originally called the San Francisco Scientific Foundation.

At that time, it was a small non-governmental organization and its primary purpose was to administer the ECSF. In the early years, each of the scientists had to do the paperwork at the offices of NCI in Loja personally. Today, the Research Unit has scientific coordinators: The position is currently shared by Felix Matt and Jörg Zeilinger. NCI has its own administrator: Pedro Paladines.

With the help of external funds and income from the rent of the ECSF, NCI grew rapidly. Today it has about fifty professionals and has established itself as an important organization to protect natural resources in southern Ecuador.

Now NCI works in the countries of Ecuador, Peru, Mexico and Paraguay:

- NCI and other institutions supported the implementation of the **GeoLoja** document, a compilation of information about the city environment that was published in March 2008. It is part the GeoCities initiative of the United Nations that focuses on environmental problems in various Latin American cities.
- The following **private reserves** in the Andean and Amazonian ecosystems are owned and managed by NCI: San Francisco, Numbala, Cajanuma, El Tiro.
- NCI assisted in the implementation of regulations and community control devices in the Colambo-Yacuri Protected Forest. In parallel, NCI has promoted the production and commercialization of **traditional native fruits**, such as the cherimoya (*Annona cherimola*) to increase the income of farming families.
- To guarantee **compensations for environmental services** NCI designed and implemented technical, legal and financial mechanisms. Since 2005 NCI supported the municipal governments of southern Ecuadorian cities like Loja, Celica, Puyango, Pindal and Zamora in the characterization and management of watersheds to protect drinking water supplies. In its first year, the city of Loja generated an income of US $200,000 from a supplemental water bill charge for watershed protection.
- NCI supports the legalization of ancestral territories, the delineation of community reserves, and the preservation of **indigenous cultures** of the Shuar groups.
- Thanks to the aforementioned initiatives, NCI had the backing of more then 40 public, private, indigenous, academic and non-governmental agencies to promote the recognition of the **Podocarpus-El Condor Biosphere Reserve** encompassing 1,140,000 hectares by UNESCO in September 2007.
- NCI is currently working in several of areas including social organization, child nutrition, participatory zoning, forest conservation, land regulation, microcredit and support for local production in the **dry forest ecosystems** known as the Tumbesian Region. In La Ceiba the organization also emphasizes community management systems to harvest and commercialize the fruits of the “Palo Santo” (*Bursera graveolens*), whose essence is now being used in the cosmetics industry.
- As a strategy of institutional financial sustainability, the **Valladolid Micro Hydroelectric Project** is under way to avoid the construction of a dam. In this way only a portion of the river is diverted, and after passing through the generating turbines, the water is returned downstream. The income generated from the sale of electricity will be used in the management of the Podocarpus-El Condor Biosphere Reserve and other areas where the institution is working.

For more information please visit:
www.natureandculture.org

Helmut Sonnert

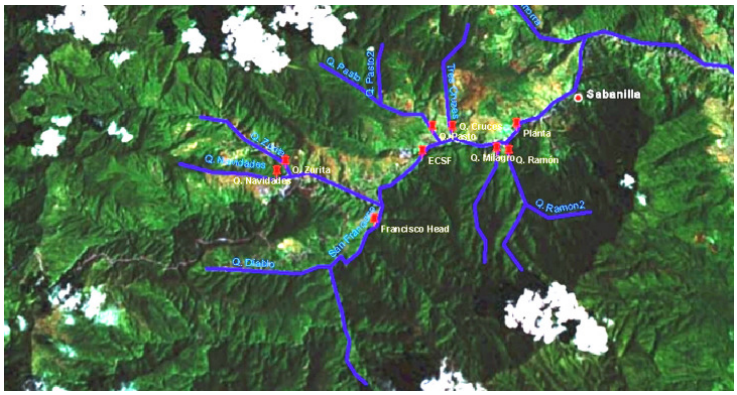
Local people using a machine to remove kernels from corn cobs. In this communitarian project NCI follows an integrated concept: such projects not only encompass protection of natural resources but also social, economic and sometimes even health components. Photo: Eduardo Cuevas.

Science News

Hydrology and Biogeochemistry

The group B3.2 (Frede, Breuer & Vaché) started working in April 2007: We applied a nested sampling approach and installed several water sensors (see figure). With the help Diego Mejia and Natalia Samaniego (see rubric New Staff) we thus were able to analyze water quality and catchment's hydrology in temporal and spatial scales. We were able to compile sound stage-discharge relations for a few subcatchments and were therefore able to get first estimates of nutrient export out of the catchments. First results of water sampling and discharge measurements were presented at the European Geosciences Union (EGU) Conference in April 2008 in Vienna.

In the future we will estimate water residence time via isotopic analysis of ^{18}O and Deuterium, and determine source areas applying multivariate statistics of water constituents. In the end, this data will serve to test and calibrate distributed and semi-distributed hydrological models, i.e. the Catchment Modeling Framework (CMF) and the Soil Water Assessment Tool (SWAT).



Location of the six water sensors in small subcatchments (quebradas) and the three sensors in the main river. Two more water sensors were installed in the channel system which are not shown in the map. Photo: Google.earth, modified by Amelie Bücker.

Our field-work team consists of two PhD students, Amelie Bücker from Gießen, Germany and Patricio Crespo from Cuenca, Ecuador, and the above mentioned diploma students. Dr. Lutz Breuer, Dr. Kellie Vaché and Prof. Dr. H.-G. Frede (Justus Liebig University of Gießen) act as supervisors on the German side, and Dr. Felipe Cisneros as well as Dr. Jan Feyen (PROMAS, Cuenca) on the Ecuadorian side.

Amelie Bücker

Data collected by group B3.2

Parameter	Sampling intervals
Water level	5 min
Discharge	point measures
Nitrate, Nitrite, Sulfate, Chloride, Phosphate	weekly to biweekly
Elements (Na, Ca, Mg, Fe, etc.)	weekly to biweekly, events
Isotopes ^{18}O and D	weekly to biweekly, events
Suspended sediment	point measures, events

More about NUMEX

In Mach and April 2008 two Litterbag experiments were established within the plots of the **Nu**trient **M**anipulation **Ex**periment (NUMEX). The objective of this experiment is to investigate decomposition processes during time in respect of litter type, altitude and nutrient addition of typical litter and roots of the study areas. The experiments will run for four years with annual samplings and a single sampling after the first six month. Decomposition rates measured as mass loss, changes in nitrogen concentrations and microbial biomass and community as well as changes in the soil fauna community will be investigated.

Decomposition of Abundant Litter and Roots at the NUMEX Sites

The study sites of the experiment range from 1000 m a.s.l. at Bombuscaro, over 2000 m at the RBSF, to 3000 m at Cajanuma. In this experiment we want to investigate decomposition processes of prominent litter and roots at the three sites to improve our understanding of turnover rates and matter fluxes in the study area. Furthermore, we established bags with litter and roots of each site at all study areas along the altitudinal gradient to evaluate the impact of altitude on decomposition processes.

Experimental Setup

Roots were collected by hand in three areas of approx. 2x2 m on each site, washed and dried for two days at 60 °C. Roots were devided into three sizes (0.5-1, 1.5-2, and 2-4 mm Ø) and weighted into the litterbags in proportion to their occurrence at their study site.

Furthermore, three prominent and distinguishable litter "types" (collected on genera level) of each site were collected by hand from the soil surface, dried and weighed into the litterbags in proportion to their occurrence at their study site. In total 10 g roots and litter were placed into the 16x16 cm litterbags (see picture). The litterbags were placed into all NUMEX control blocks at all sites randomly (see picture).

Dorothee Sandmann stuffs and weighs the litterbags.

The litterbags containing either roots of three different diameter classes or litter of three different genera are placed on the NUMEX sites randomly. Photo: Dorothee Sandmann.

Effects of Nutrient and Ca Addition on Decomposition

The tropical mountain soils are strongly weathered and poor in nutrients. The organic layer is thick and thickness increases with altitude. Parameters which affect decomposition and nutrient turnover are poorly understood. In this experiment we investigate whether the availability of nitrogen, phosphorus and calcium limits decomposition processes.

Experimental Setup

In this experiment we used two different litter types:.*Graffenrieda emarginata* produce a relative strong litter poor in nitrogen. *Cecropia* species from Bombuscaro produce softer litter which is presumably richer in nitrogen.

To distinguish the effect of nutrient addition from the effect of altitude all litter types were replicated in all treatments of all NUMEX sites.

Dorothee Sandmann

The Epiphyte Succession Experiment

The "Epiphyte Succession Experiment" (project A2.5) is in its fifth year of monitoring human impact on vascular epiphytes. The study was initiated in 2003 when 1,500 individual plants were marked and measured on isolated remnant trees in a fresh clearing above Sabanilla, and along T2 and Q2 (controls). The clearing at Sabanilla is very suitable for this purpose – and may be of interest to other research groups as well – since its history is well-known and was not burned after clear-cutting (quite contrary to local habits). Over the course of the first three years over 70 % of the marked plants died on the isolated trees in the clearing, as compared with only 11 % in the forest.

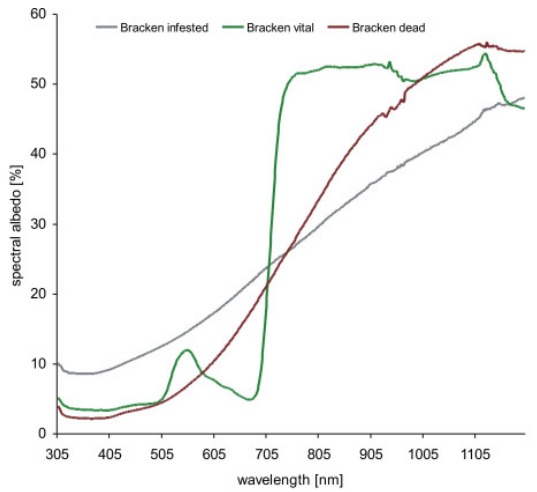
Since 2004 the impact of selective logging is being monitored in the area of Q5. Unlike clear-cutting, selective logging did not have negative effects on epiphyte performance (mortality, leaf growth). In contrast, several plant taxa responded negatively to the unusually dry conditions of 2006. The licencatura thesis of Pablo Ramirez from Universidad del Azuay, Cuenca, treated the first two years following the logging. Tesista Ruth Arias, also from Universidad del Azuay, has now augmented the number of surveyed plants to 2,500 and will conduct another survey during May–July 2008.

The experimental work is accompanied by a study on the diversity of vascular epiphytes in young and old secondary forests. Young fallows (about 12 years old) at Arco Iris have been sampled by our diploma student Nicole Winkler from the University of Leipzig. These secondary forests are quite poor in epiphytes, with animal-dispersed taxa being particularly scarce. Characteristic is the dominance of the early-successional fern *Melpomene wolfii*. In the autumn of 2008 work will be continued by sampling the older, 40 y old secondary forest of the "Handtuchfläche" ("parcela toalla") in the RBSF.

The Threat of Southern Bracken

After the successful acquisition and installation of the bracken fern site in 2007 in subproject 3.1 (Beck & Bendix), field work was continued in January/February this year. Foci were on LAI measurements and the spectrometry of bracken fern and *Setaria*, the latter to derive optical traits (spectral albeo and transmission) required for the southern bracken competition model. Additionally, bracken fronds in different stages of virgour were scanned (see figure). It was shown that vital fronds revealed the typical spectral behaviour of green vegetation with low albedos in the visible (VIS) and very high albedos in the near infra-red (NIR) spectral bands.

As expected, the soaring NIR albedo ("red-edge effect") of green fronds did not occur for dead brownish bracken tissue. However, a clear difference in reflectivity could be observed by comparing dead frond material and dead fronds infested by pathogenic fungi. These brownish fronds with a whitely film of fungi show significantly higher albedo values in the VIS but lower values in the NIR compared to non infested dead frond tissue. This difference should facilitate the proper segmentation of digital camera or satellite imagery regarding the mapping of bracken state.



Spectral albedo (reflectivity) of bracken fronds in different stages of vigor.

The population studies of bracken which have been performed until recently by a comprehensive isozyme analysis shall be complemented by genetic investigations. According to preliminary results the population could be composed of two subspecies. This may explain at least partly the great morphological variation of the fern in the research area.

Depending on the weather situation, the first ecological fire experiment on the bracken site is scheduled for the week (September 15-19 2008) subsequent to the annual status symposium in Loja. Working groups which would like to contribute to the experiment should contact Erwin Beck or Jörg Bendix as soon as possible.

Erwin Beck, Jörg Bendix, Dietrich Göttlicher, Kristin Roos

Event Calendar

May 13th 2008 8:00 p.m.	**Monthly colloquium of the RU 816** Speaker: Florian Werner: "Impact of land use on epiphyte diversity". Casa de la Cultura Ecuatoriana, Loja
June 9th-13th 2008	**ATBC-GTÖ Conference** in Suriname. More information: http://www.atbc2008.org/
June 10th 2008 8:00 p.m.	**Monthly colloquium of the RU 816** Speaker: t.b.a. Casa de la Cultura Ecuatoriana, Loja
June 10th-12th 2008	**"Part-time (sandwich) & Research Incubators"** First Meeting at the Universidad Técnica Particular de Loja (UTPL): details are given in "Miscellaneous"
July 26th-30th 2008	Congress: **Botany 2008 – Botany without Borders** University of British Columbia, Vancouver BC, Canada
September 11th -12th 2008	Annual **Status Symposium** of the RU at Loja Universidad Técnica Particular de Loja (UTPL)
September 22th – 25th 2008	Workshop: **Mycorrhizas in tropical forests**. Organized by Dr. Ingrid Kottke; Universidad Técnica Particular de Loja (UTPL). Details are given in "Miscellaneous"
November 24th – 28th 2008	Conference: **The Andes - Challenge for Geosciences** 4th EGU Alexander von Humboldt International Conference, Santiago de Chile. Details are given in "Miscellaneous".

People and Staff

New Staff Members

Maren Meyer-Grünefeldt started her work as PhD student in the working group of Wolfgang Wilcke (subproject B2.3) in March 2008. Maren has earned her Diploma in Environmental Sciences at the Leuphana University Lüneburg. Her tasks include the management of the three field experiments (long-term Ecosystem Study in Q2, Natural Forest Management Study in Q5, and Nutrient Management Experiment (NUMEX) on T1) together with Hans Wullaert. She will also do the modeling of the nutrient cycles in the small catchments Q2 and Q5.

Wolfgang Wilcke

Diego Geovanny Mejia Veintimilla is an undergraduate student at the Universidad Nacional de Loja (UNL). Since May 2007 he is working on his diploma thesis in subproject B3.2 (Breuer/Frede). He will characterize water quality of the San Francisco catchment at temporal and spatial scales. His thesis is anticipated to be completed in 2008.

Natalia Samaniego Rojas also is an undergraduate of the UNL. She started her thesis in working group B3.2 in October 2007 and investigates spatial and temporal variability of suspended sediment concentration in two types of subcatchments – pasture and forested – and in the main river. Her work consists of water sampling and filtration and the operation of four turbidity sensors as well as discharge measurements.

Amelie Bücker

Christoph Digel is currently working on his Diploma thesis (subgroup A2.3, Scheu, Maraun & Bonkowski). He is investigating abundances and community structure of Collembolans on an altitudinal gradient (from 1000 -3000m). Through genetic sequencing he also investigates the phylogeny of certain Collembolan species from Ecuador compared with morphological alike species from Germany.

Michael Ackermann joined the working group of Stefan Scheu and Mark Maraun (subgroup A2.3) for his research practical. In the context of a fertilization experiment he is working on the effects of carbon and nutrient addition on abundance and community structure Nematodes.

Dorothee Sandmann

New Data and Publications

Latest Publications

New Peer Reviewed Papers

Günter, S., Stimm, B., Cabrera, M., Diaz, M. L., Lojan, M., Ordoñez, E., Richter, M. & Weber, M. (2008): Tree phenology in montane forests of southern Ecuador can be explained by precipitation, radiation and photoperiodic control. Journal of Tropical Ecology (in Press).

Sven Günter

Recent Theses

Marcus Lehnert (2007): "Diversity and evolution of pteridophytes, with emphasis on the Neotropics". Dissertation Thesis, Dept. of Systematic Botany, Univ. of Göttingen. In the framework of subproject A4 (RU 402), Marcus has studied the pteridophytes (fern and fern allies) of the RBSF, focusing on the *Purdiaea nutans* forest that dominates on ridges between 2200-2650 m a.s.l: The fern communities on ridges and slopes in the RBSF do not differ significantly from those in similar sites at Tapichalaca and El Tiro in terms of endemism and diversity. However, widespread species showed a significant downward shift of their upper elevational limits compared to other sites in the Andes. This downward shift correlates with the significant lowering of the 11º C isotherm (mean annual temperature) in southern Ecuador due to lower elevation of the cordillera in the region (= "Amotape-Huancabamba depression"). The dissertation furthermore included taxonomic and phylogenetic studies on selected characteristic fern taxa of the RBSF, including the genus *Melpomene* (full monograph) and the scaly tree ferns, and an investigation of mycorrhiza in ferns. The taxonomic study yielded many new floristic records and ten species new to science from Ecuador, five of them with type locality in Prov. Zamora-Chinchipe. The mycorrhiza study revealed that terresterial ferns are mycorrhizal (involving AMF) or non-mycorrhizal while epiphytic

ones are predominantly non-mycorrhizal. Some epiphytic lineages (i.e. filmy ferns, grammitid ferns, *Elaphoglossum*), however, have regained mycorrhiza involving ascomycetes. The Thesis can be downloaded at: http://webdoc.sub.gwdg.de/diss/2007/lehnert/lehnert.pdf

Nicole Mandl (2007): "Bryophyte and macrolichen diversity of the *Purdiaea nutans* forest in southern Ecuador and its relationship to soil, climate and vegetation structure". Dissertation Thesis, Dept. of Systematic Botany, Univ. of Göttingen. In the framework of subproject A4 (RU 402), Nicole studied the ecology of the *Purdiaea nutans* forest with special attention to bryophytes and macrolichens. The study was carried out in parallel the work of Marcus Lehnert and included the first ecological analysis of terrestrial bryophyte communities in the tropics. The investigations confirmed that the *Purdiaea* forest of the RBSF is a unique azonal vegetation type - not found anywhere else - that developed due to historical fire events (studies of Behling' group) and a unique combination of site-specific abiotic factors including topography of the ridges, geology, pedology (studies of Makeschin's group) and macroclimate (studies of Richter's group). The bryophyte and macrolichen communities of the *Purdiaea* forest - in spite of being rich in rare species - are probably not affected by the unique tree species composition of the forest. Significant differences were found between cryptogamic of slopes and ridges, of sunny and shaded habitats, and of tree trunks and tree crowns. The differences are largely governed by microclimatic conditions. Small-scale heterogeneity characterizes the species assemblages on ridges. Alpha and beta diversity patterns were similar among ferns and liverworts, but very different in mosses and lichens. The former two plant groups work as surrogates for another in biodiversity analyses.

Florian Werner (2008): "Effects of human disturbance on epiphyte assemblages in the Andes of Ecuador" Dissertation Thesis, Dept. of Systematic Botany, Univ. of Göttingen. For his doctoral thesis in subproject A10 (RU 402) and the current follow-up project A2.5 (RU 816), Florian studied disturbance effects on epiphytes at two different sites, an Interandean dry forest and the RBSF. At the RBSF he focussed on the study of isolated trees as model forest fragments. He found that vascular epiphyte assemblages on isolated trees in pastures were strongly impoverished in species composition as compared to those in the forest. Field-experimental work showed that both seedling establishment and the performance (survival, growth) of well-established plants were strongly reduced on isolated trees. Compositional patterns of establishment and mortality suggest that microclimatic changes are a key predictor for the diversity of epiphytes following human disturbance.

Robbert Gradstein

Claudia Armijos (2008): "Interindividual variation of phenology and seed production of three tree species in Southern Ecuador". One of several interesting outcomes of the study is the detection of biannual seed production patterns of *Cedrela montana* which possibly can be attributed to resource allocation effects.

Fabian Brambach (2008): "Land use quantification in a Shuar community of Southern Ecuador with participative methods". The results can be useful for management plans from local NGOs, and for working groups, which require data input for socioeconomic modeling.

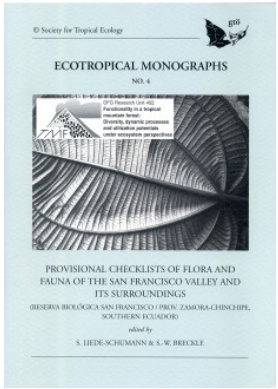
Sven Günter

Susanne Iost (2008): Soil respiration, microbial respiration and mineralization in soils of montane rainforests of Southern Ecuador: influence of altitude. Dissertation Thesis, Technical University of Dresden. The thesis can be downloaded: http://hsss.slub-dresden.de/deds-access/hsss.urlmapping.MappingServlet?id=1201126765623-4287

Susanne Iost

New Books

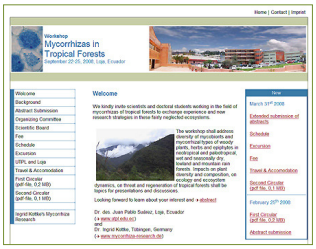
Liede-Schumann, S. & Breckle, S.-W. (Eds.) (2008): Provisional Checklists of Flora and Fauna of the San Francisco Valley and its Surroundings. Ecotropical Monographs 4, 256 pages. The book encompasses 13 checklists of species including Angiosperms, ferns, horn- and liverworts, as well as orthoptera, birds, mammals and moths which were in ten years of ecological studies.



Miscellaneous

Mycorrhizas in tropical forests

In September a workshop on “Mycorrhizas in tropical forests” will be organized by members of the RU: Dr. Ingrid Kottke from the University of Tübingen, Germany, and Dr. Juan Pablo Suarez, Universidad Técnica Particular de Loja (UTPL), Ecuador. Besides them Dr. Luis Miguel Romero, Rector and Chancellor of UTPL, is also a member of the scientific board. The workshop is organized in cooperation with the UTPL, the RU and the Estaciòn Scientifica San Francisco at Loja. The workshop’s website is: http://www.mycorrhiza-research.de/Workshop/01Welcome.html



Invited Scientists of the RU

Preventing “Brain Drain”

Dr. LM Romero, Rector and Chancellor of the Universidad Técnica Particular de Loja (UTPL) is currently president of the Inter-American Organization for Higher Education (Organización Universitaria Interamericana). In this function he is organizing the "First Meeting on Part-time and Research Incubators" from June 10th-12th 2008.

Information can be obtained from www.ouiiohe.org/encuentroincubadoras2008.

Ingrid Kottke and Franz Makeschin were invited to inform and discuss about their experiences with “sandwich” doctoral students from UTPL. Sandwich students are studying in their home counties most of the time and are invited one or several times to study abroad. Using this concept the foundations hope to prevent “brain drain” from developing countries.

Ingrid Kottke

Keynote Speakers and Excursion Organizers

Micheal Richter and Achim Bräuning are keynote speakers at the 4th EGU Alexander von Humboldt International Conference called “The Andes – Challenge for Geosciences” taking place from November 24th – 28th 2008 in Santiago de Chile. This Conference aims to bring together researchers from diverse specializations and thus catalyze comprehensive interdisciplinary research.

Richter and Bräuning are also organizing an excursion taking place after the conference in which they will explore the Atacama Desert of Chile. There they will offer guided hikes on the topics of geomorphology, mineral deposits, climate change, water problems, plant communities and adaptions, post volcanic landforms and more.

The conference’s website is:
http://meetings.copernicus.org/avh4/

Peter Fabian

Deadline

The editorial deadline for the next issue of the TMF-Newsletter is: August 21st 2008. Please send your information for the next newsletter to esther.schwarz-weig@wissensworte.de

Esther Schwarz-Weig
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More information about research, the scientific and the local advisory board, and all principal investigators is available at:
www.tropicalmountainforest.org

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