



NEWSLETTER

Vol. 1 - August 2013

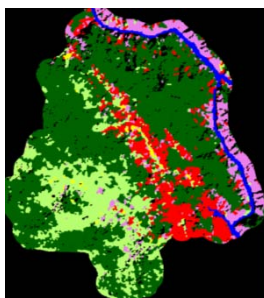
News - Forthcoming

- [6th Annual ESP Conference](#), 26th - 30th of August, Bali, Indonesia
Participants: Dr. Marc Cotter, Inga Häuser
- [IAHR Conference](#), 8th -13th Sept., Chengdu, China
Participants: Lydia Seitz, Prof. Dr. Silke Wieprecht
- [Tropentag 2013](#), 17th - 19th of Sept., Hohenheim, Germany
[Contributions](#)
- **Guest lectures at the Xishuangbanna Tropical Botanical Garden, Chinese Academy of Science , China**
Guest lecturer: Prof. Dr. Michael Ahlheim, 6th of August
Prof. Dr. Georg Cadisch, 20th of August

Conference contributions

- SP2 • Introduction of SURUMER and activities of SP2 by Arisoa Rajaona, 14th of May during XTBG seminar, Xishuangbanna, China.
 - SP3 • ‘Karlsruher Flussgebietstage’, 20th/ 21st of June; Karlsruhe, Germany;
Participants: Lydia Seitz, Maren Burkert
 - Meeting of German Water Partnership; Gütersloh, Germany;
27th of June; Participant: Manuel Krauß
[Read more...](#)
 - SP6 • [Sustainable China: Challenged-Actors-Policies](#);
5th - 14th of July; Shanghai, China;
Participant: Franziska Harich
-

Scientific Topics



Model Group brings together InVest (PMC), LUCIA (SP1) and SWAT (SP3) [Read more...](#)

Geographic maps of Greater Mekong Region available [Read more...](#)

Heavy rain and storms cause water level rise in NNNR [Read more...](#)



Devices installed and protocols established. Latest operations include ingrowth cores and soil temperature measurements [Read more...](#)

Thunderstorm facilitates aboveground biomass and root measurements [Read more...](#)



Evaluation of the water quality of Naban River compared to a reference stream within NRWNNR and the investigation of sediment transport within Naban River under varied conditions are in process. [Read more...](#)

Current analyses of SP4 : Wild bee diversity at landscape scale. But bees do not only serve as pollinators... [Read more...](#)



Almost 100 questionnaires have been conducted so far, investigating the cultivation habits, land use and interactions with wildlife in Thailand [Read more...](#)

First regional stakeholder workshop held on 10th of January 2013 in Jinghong. [Read more...](#)



Baseline survey conducted by a group of students from Humboldt-Universität zu Berlin (HUB) in collaboration with students from China Agricultural University (CAU) in eight villages within NRWNNR from the 3rd to the 17th of March 2013. [Read more...](#)

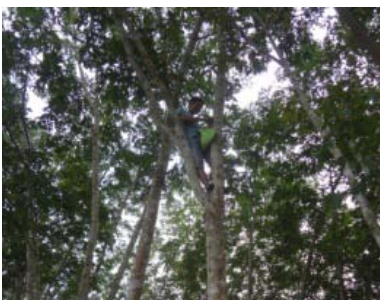
The Stories of Science



Installed soil erosion plots surprise with special gifts [Read more...](#)



International experiences at Swabian „Weiberfasnet“ [Read more...](#)



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Model Group

Several meetings of PMC (Inga Häuser), SP1 (Sergey Blagodatskyi) and SP3 (Maren Burkert) took place to discuss model group issues of InVEST, LUCIA and SWAT.

Anybody who is interested can have a look at our minutes (openILIAS 3.1.4. Model group). The model group uses openILIAS also to save data which we agreed upon to use for all models (digital elevation models, land use map versions, etc.). So if you happen to need spatially explicit data please check what is available at 3.1.3. Landscape and Remote sensing data. (PMC)

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Geographic outreach of Greater Mekong Region

For displaying the geographic outreach of the Greater Mekong Subregion there are several png-file maps available at 3.1.3.1. Maps Greater Mekong Subregion, which you can use for presentations, publications etc. (PMC)

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Heavy rain and storm cause rising water level

SP1 installed a monitoring station near Naban Station with continuous monitoring of water level, turbidity and precipitation. From 23rd of June at night to 24th of June in the morning (around 11:00), there a heavy storm caused 52mm of rain within only 7 hours. The water level rose very quickly and water depth increased enormously so that only 20-30cm was left between water level and bottom of data logger box (Fig. 1). When it was observed that the water was about to reach data logger box, in order to protect instruments, we put on our special suit, jumped into the river, fought with the speedy water to cut off electricity and took out the data logger. This storm brought a lot of sediments and strongly changed the river bed. (SP1)

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Fig. 1 Monitoring station during storm

Devices installed and protocols established

Work progress of SP2: Step by step, all devices were installed, and data collection started. Protocols are almost established. The latest operation concerned mainly:

- The installation of ingrowth cores (Fig. 2),
- The addition of sensors for soil temperature (Fig. 3) in order to better understand the temperature differences between the soil and the atmosphere. This temperature difference might potentially affect the water use of the rubber trees (improvement of data explanation) (SP2)

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Fig. 2 Installation of ingrowth cores



Fig. 3 Sensor for soil temperature

Thunderstorm facilitates aboveground biomass and root measurements

When a strong thunderstorm hit Menglun in March, some rubber trees (22 years old) in the botanical garden fell (Fig. 4). It gave us the opportunity to collect the aboveground biomass, and also to excavate the root. The assessment of biomass distribution is not an easy task when tall trees are concerned. Nevertheless, the data will be used to complement information related to water use. This activity was not included in the project but when the opportunity showed up, we just had to profit from it. Another thunderstorm also occurred in May and it bended our 15 m tower access but no harm was done. (SP2)

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Fig. 4 Storm-hit tree

Evaluation of the water quality and sediment transport are in process

Currently SP3 is investigating the physico-chemical status of Naban River in comparison to a reference stream within the NRWNNR. As reference stream we chose the Hui Laoqin, which upper part is characterized by less influence of rubber plantations or other agriculture land use in its upper watershed (see Fig. 5). In order to get a good overview of the water quality of the Hui Laoqin SP3 analyzed water samples in the morning, at noon and in the afternoon from April 29th – May 31st. Comparing Hui Laoqin with Naban River will give us information about the influence of the different land use types on the water bodies. The amount of solid particles within the Naban River at different conditions before, during and after precipitation and the relation to water velocity and water depth was investigated, respectively. The students stayed in Naban from April 2nd to June 3rd and will finish their Diploma Thesis within the next months.

Since beginning of June Mr. Liu Feng and his colleague Yan Zai Lie maintain and collect the data of the monitoring stations P2 and P4. (SP3)

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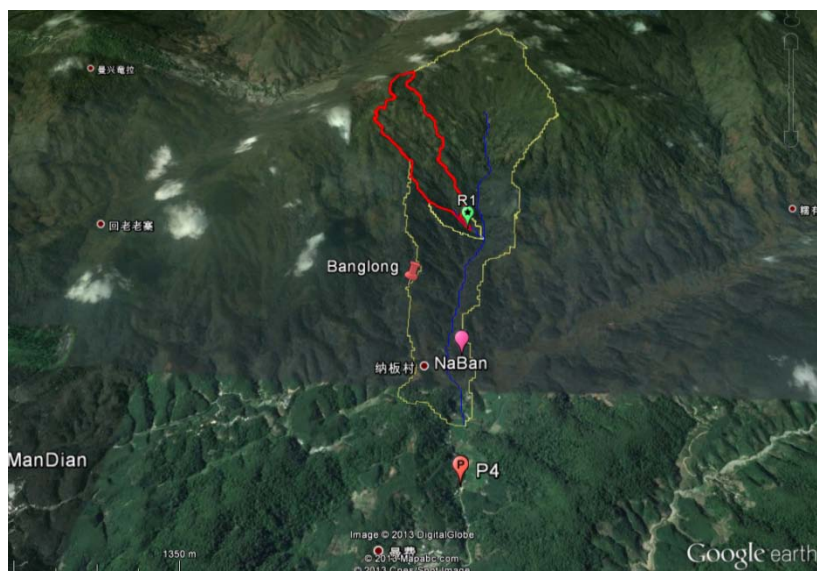


Fig. 5 Watershed of Hui Laoqin river. Outlined in red is the area above the sampling point R1.

Current analyses of SP4

Insect pollinators provide an ecologically and economically important ecosystem service to wild plants and crop production. In addition, various species of wild bees are traditionally used by farmers for honey production (Fig. 6). In the study region (NRWNNR), wild bees are attracted by artificial hives or nesting sites from their natural habitats (Fig. 7). The major threats for wild bee diversity and pollination services are the destruction and fragmentation of natural habitats, and the intensification of agricultural landscapes including rubber cultivation. The main activity of SP4 conducted at present is the analysis of wild bee diversity at landscape scale in order to identify the most relevant natural habitats for bees as a basic study to predict and model effects of land use change on bee resources.



Fig. 6 Consumption of honey from wild bees; Fig. 7 Artificial nesting site established by farmers to attract wild bees of the genus *Trigona* for honey production.

The main activity period of wild bees is related to the presence of flowering resources, i.e. from the beginning to the end of the rainy season. We therefore conduct the study in 2013 from April to September. Towards the end of this period, field activities often become unpleasant due to heavy rainfall.... (Fig. 8). Bees are recorded by artificial colour traps in different habitat types of the landscape, including forest margins, grassland, shrubland and rubber plantations of different age (Fig. 9). This study includes 12 different sites using 144 traps overall. Collections from the traps are conducted every 14 days. Six cycles have been collected so far, and finally there will be 8 cycles. Each collection delivers 200-400 bee individuals from all traps together. The species will be identified by experts from the CAS Institute of Zoology, Beijing. At each study site, farmers activities (pesticide and fertilizer use, weeding) are documented and vegetation is recorded regularly to identify the plant species which provide food resources for bees. In addition, sweep netting is done regularly at each site for additional records of wild bees (Fig. 10).



Fig. 8 Heavy rain approaching over Jinghong



Fig. 9 Colour trap for wild bees established in a young rubber plantation

Bees are not the only beneficial insects for the farmers, the natural biodiversity also provides a number of species which are traditionally used as food (Figures 11 and 12). According to the FAO, insects as food emerge as an especially relevant issue in the twenty-first century due to the rising cost of animal protein, food insecurity, environmental pressures etc. The consumption of wild insects therefore contributes positively to the environment and livelihoods, if their natural habitats are protected for sustainable use. [back to top](#)



Fig. 10 Pia at work recording bees using a sweep net



Fig. 11 Beetle larvae collected for food



Fig. 12 Cicada collected for food

SP6- Work progress and preliminary findings

SP6 is currently interviewing farmers in the area around the Tai Rom Yen Protected Area in southern Thailand. Almost 100 questionnaires have been conducted so far, investigating the cultivation habits, land use and interactions with wildlife in the region. For more than 90% of the interviewed farmers, rubber is the main source of income. Further, 22% of the interviewed farmers practiced some kind of intercropping, mostly with *Gnetum gnemon* or mangosteen, but in case of young rubber plantations also with pineapple, watermelon, lemongrass or some ornamental flowers.

Farmers named “diseases” as the biggest threat to their crops (for 49% of the farmers); only 9% of the respondents mentioned “wildlife” as the first important threat to their cultivations. One third of the farmers have encountered elephants on their farm at one point within the last months, but less than half of those farmers experienced damage to their crops. Elephants mainly damage young rubber by stepping on the plants or digging out the roots. Hardly any damage of mature rubber trees was reported. 75% of farmers earn between 10.000 and 30.000 THB (250 - 750 € per month). SP6 is currently supported in the field by two MSc students. Their field work in Thailand will end in July / August 2013. (SP6)

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Fig. 13 How to get a stuck car out of the mud

First regional stakeholder workshop

On the 10th of January 2013, the first regional stakeholder workshop “The Future of Rubber Cultivation in Xishuangbanna” was successfully held in Jinghong (Fig. 14). Participants from research institutes, rubber companies, state farms, Xishuangbanna government bureaus, and SURUMER representatives were all in attendance. On the basis of informing about the SURUMER project, participants had an in-depth discussion about the current rubber cultivation situation in Xishuangbanna as well as the trends of rubber industry and rubber policy in the future. As a result, regional stakeholders have been identified and their connection with SURUMER has been strengthened. Researchers from SURUMER have obtained first-hand information of rubber cultivation in Xishuangbanna for the further establishment of the sustainable management strategy. (SP8) [back to top](#)



Fig. 14 Stakeholder workshop in NRWNNR Bureau conference room (by Guanghong Cao)

Baseline survey conducted

A group of students from Humboldt-Universität zu Berlin (HUB) in collaboration with students from China Agricultural University (CAU) conducted a baseline survey in eight villages within NRWNNR from the 3rd to the 17th of March 2013 (Fig. 15). The focus of the study was: Stakeholder identification, stakeholders’ problems and interests towards rubber cultivation, their communication networks, and land-use including alternatives. Preliminary findings were presented to experts from NRWNNR Bureau on the 16th of March. The officials expressed great interest in the research and provided excellent feedback. Information gathered from the baseline survey has been analyzed and the stakeholder analysis report will be edited and published later. (SP8) [back to top](#)



Fig. 15 Research group from both HUB and CAU in Mandian Village

Installed soil erosion plots surprise with special gifts

Twelve bounded plots were installed in the Watershed of Naban to investigate the impact of different land use on soil erosion (Fig. 16): young, middle-age, old-age rubber plantation and inter-crop of rubber and tea. For each type of land use, three plots were installed. The soil erosion plots for collecting run off always surprised us with unexpected “gifts” like snake, rat, and centipede. Especially the troughs seemed like a perfect shelter for them (Fig. 17). The rats even chose to make a hole under the lips and kicked lots of soil into the troughs. They seem to really love our buckets and are, thus, interfering with our experiment. But this is nature and this is field work. (SP1)

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Fig. 16 Soil erosion plot



Fig. 17 Centipede found in the bucket

International experiences at Swabian „Weiberfasnet“

On 8th of February a large group of international students and Hohenheim members went to experience the typical Swabian “Fasnet” in Neuhausen. This special carnival is mainly celebrated in South-West Germany and parts of Switzerland and separated in the early 20th century from the “Rhenish carnival”. Very characteristic for the “Fasnet” are the masks, traditionally made out of wood. The carnival participants wear their specific costume every year, some of them even pass it on to their children. And the “Hästräger” (those wearing the costumes) were very excited to introduce us to their carnival tradition. (PMC)

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Fig. 18 International students enjoy their experiences with the Swabian “Weiberfasnet”

The Challenge:

How to climb up the tree to install sap flow sensors at 10 m above the ground. (SP2)

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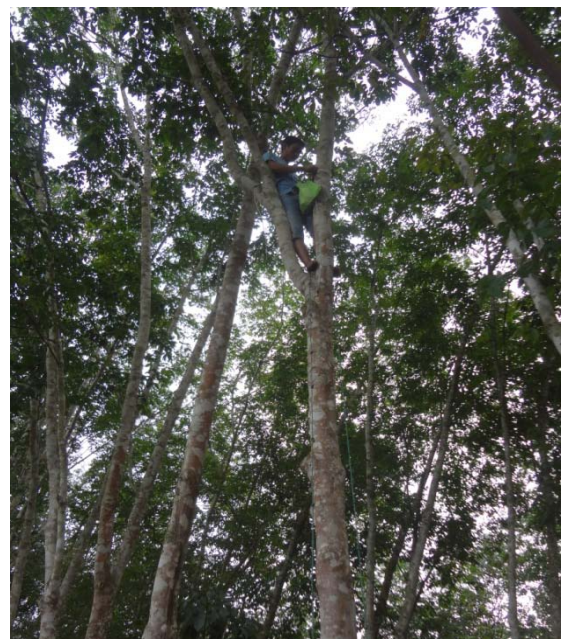


Fig. 19 Installation of sap flow sensors

Human -Monkey conflicts in Thailand and other challenges

One of the fresh MSc students of SP6 made his first practical experience in human-wildlife conflicts on the third day of his stay in Thailand – he got attacked by a stray macaque. So his next practical Thailand experience included a 3-days stay in the hospital. He recovered quickly and his engagement was rewarded with a deep understanding and compassion for people living with wildlife in the area. Having learned from the student’s lesson on human-monkey conflicts already, First, our research assistant, chose a physical exercise over a direct encounter and had to do a quick sprint to get out of a wild elephant’s way. Other highlights concerning wildlife included a scorpion in the bathroom, a snake on the front step of our research accommodation and a herd of gaur close by (in the jungle, not in the house). (SP6)

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Fig. 20 Good idea to keep some distance to wild elephants – but no help if he shows up in front of your door!



Fig. 21 In case it was not clear WHO the boss is here – and who gets the bananas

International Women's Day

On 8th March 2013, Chachang village held a grand ceremony to celebrate the International Women's Day. During the day, women dressed up in costume, danced, sang, relaxed and enjoyed the experience. The men did all the housework and prepared the feast. Supervisors and students who were conducting a survey there were invited to the banquet and treated as honorable guests. (SP8)

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Gelanghe Mountain Biking Tour

During the baseline survey, our group had a free day to explore the surrounding area. We went to Nannuoshang and visited the old tea tree plantation. From there, we mountain biked all the way back to Jinghong past the beautiful Gelanghe mountain and many Aka villages. Nice weather, amazing views, plus biking through the superb terrain of southwest China! This is a memory we will never forget. (SP8)

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Fig. 22 Taking a rest during the mountain biking trip
(by Karina Alejandra Rodriguez Jardines)



Karlsruher Flussgebietstage & Meeting of German Water Partnership

Besides the field and laboratory work Lydia Seitz and Maren Burkert attended the “Karlsruher Flussgebietstage” in Karlsruhe at June 20th and 21st. According to the conference topic “Sources and Transport of solids and contaminants” the poster “The influence of fine sediment input on the interstitial space” explaining our approach and first results of the riverbed exploration were presented. Further, experiences about in-stream online monitoring have been discussed and exchanged with other participants of the conference. Manuel Krauss participated in a meeting of the regional section of the German Water Partnership in Gütersloh at June 27th to discuss with German companies, research institutions and ministry officials possible sino-german water cooperation.

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Tropentag 2013 - Accepted presentations

No.	Authors	Title	Post.	Oral	Institutions involved	SP
1	Xueqing Yang 1, Georg Cadish 1, Sergey Blagodatsky 1, Jianchu Xu 2/3	Carbon stock changes evaluation in Naban River National Nature Reserve using Rapid Carbon Stock Appraisal	✓		1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany; 2 World Agroforestry Centre, China & East Asia Office, China; 3 Kunming Institute of Botany, Chinese Academy of Sciences, China	1
2	Hongxi Liu, Sergey Blagodatskiy, Georg Cadisch (all 1)	Soil and carbon loss within watersheds affected by rubber cultivation in Xishuangbanna, South-West China	✓		1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany	1
3	Georg Cadisch 1, Sergey Blagodatskiy 1, Jian Chu Xu 2, Carsten Marohn 1	An integrated modeling approach to determine environmental services and trade-off effects under land use change		✓	1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany; 2 Kunming Institute of Botany, The Chinese Academy of Sciences, Center for Mountain Ecosystem Studies, China	1
4	Arisoa Rajaona 1, Sabine Stürtz 1, Kunfang Cao 2, Folkard Asch 2	Water Use of Young and Mature Rubber (Hevea brasiliensis) Trees During Wet Season in Xishuangbanna, China	✓		1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany; 2 Chinese Academy of Sciences, Xishuangbanna Tropical Botanical Garden, China	2
5	Konrad Martin 1	Rubber cultivation in the GMS: dimension and potential consequences for crop production		✓	1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany	4
6	Gerhard Langenberger 1, Qingsong Li 2	Rubber agro-forestry systems - a review	✓		1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany; 2 Hainan University, Haikou, China	5/ PMC
7	Michael Ahlheim 1, Oliver Frör 2, Britta Möller 1, Yalei Zhang 3, Weimin Xi 4	Welfare Economic Valuation of a Sustainable Rubber Production in Southeast Asia: An Exemplary Study in SW-China		✓	1 University of Hohenheim, Economics, esp. Environmental Economics and Regulatory Policy, Germany; 2 University of Koblenz-Landau, Environmental Economics, Institute for Environmental Sciences, Germany; 3 Tongji University, College of Environmental Science and Engineering, China; 4 Shanghai 3EN Environmental & Energy-Saving Engineering Co., Ltd., China	7
8	Susanne Hofmann Souki, Thomas Aenis & Jue Wang (all 1)	Interdisciplinary Study Projects within the Framework of Transdisciplinary Processes	✓		1 Humboldt Universität zu Berlin, Germany	8
9	Thomas Aenis 1, Jue Wang 1, Lixia Tang 2, Feng Liu 3	Sustainable rubber cultivation in Southwest China: Approach to stakeholder involvement and dialogue		✓	1 Humboldt Universität zu Berlin, Germany; 2 China Agricultural University, Beijing, China; 3 Naban River Watershed National Nature Reserve Bureau, Jinghong, China	8
10	Hermann Waibel 1, Shi Min 1, Jan Henrik Meier 1, Junfei Bai 2, Jikun Huang 2	Socio-Economic Aspects of Rubber Cultivation in Southern China		✓	1 Leibniz Universität Hannover, Institute of Development and Agricultural Economics, Germany; 2 Chinese Academy of Sciences, Center for Chinese Agricultural Policy, China	9
11	Inga Häuser, Marc Cotter, Joachim Sauerborn (all 1)	Assessment of Ecosystem Services and Conflict of Goals in Rubber Cultivation via Invest	✓		1 University of Hohenheim, Inst. of Plant Production and Agroecology in the Tropics and Subtropics, Germany	PMC

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