NEWSLETTER

Vol. 3 - December 2014

News - Forthcoming

- **Kick-off Workshop GLUES- WOCAT book and videos** (click title for information on WOCAT methods)
  January 26. - 29., 2015, Leipzig, Germany

Conference contributions and meetings

SURUMER
- **Tropentag 2014**
  September 17. - 19, 2014, Prague, Czech Republic
  SURUMER Participants and contributions

PMC/ SP5
- **LMI LUSES Annual meeting 2014**
  October 13. - 15, 2014, Vientiane, Laos

PMC
- **Convention on Biological Diversity, COP 12** (Side event)
  September 29. - October 17., 2014, Pyeongchang, Republic of Korea
  Report of Side Event

SP3
- **German Water Partnership, Länderforum China**
  September 30, 2014, Hof, Germany

SP6
- **2014 International Conference on Rubber (2014 ICR)**
  August 28. - 30., Thaksin University, Thailand
  Oral presentation by SP6: "Can Rubber Cultivations Serve as Wildlife Habitat? A Case Study from Tai Rom Yen National Park, Thailand"

SP6
- **The 3rd Asia Regional Conference of the Society for Conservation Biology**
  August 19. - 22., 2014, Melaka, Malaysia
  Oral presentation by SP6: "Human-elephant conflicts in rubber-dominated landscapes surrounding protected areas in Southern Thailand"

SURUMER publications

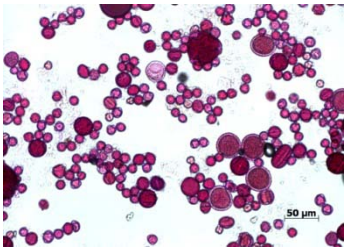
- FZID Discussion Paper No. 94-2014: Chinese urbanites and the preservation of rare species in remote parts of the country - The example of eaglewood
  Michael Ahlheim, Oliver Frör, Gerhard Langenberger, Sonna Belz
- ROGGA, S.; WEITH, T.; AENIS, T.; MÜLLER, K.; KÖHLER, T.; HÄRTEL, L. & KAISER, D.B. (2014): Wissenschaft-Praxis-Transfer jenseits der „Verladerampe" - Zum Verständnis von Implementation und Transfer im Nachhaltigen Landmanagement. Diskussionspapier No. 8 (Juli 2014). Hrsg. vom Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V.: Müncheberg.

Scientific Topics

Workshop on 'Sustainability of Natural Rubber in the 21st Century – Current status and future Outlook' conducted in Vientiane, Laos

Read more...

Rainfall simulator experiment Read more...



Analysis of honey from different honeybee species in NRWNNR under preparation Read more...

Agroecological diversification- SP5 and NRWNNR establish demonstration plots Read more...

Field work of SP6 about to be finalized Read more...

Training on camera trap handling and survey design conducted

Read more...

Third Regional Stakeholder Workshop successfully held

Read more...

Interviews for value chain study conducted Read more...

Second study project in preparation Read more...

Workshop on 'Sustainability of Natural Rubber in the 21st Century – Current status and future Outlook' conducted

The workshop (WS) on Sustainability of Natural Rubber in the 21st Century – Current status and future Outlook, took place in Vientiane, Laos from October 15th to 18th, 2014.

This WS was hosted by the National University of Laos (NUoL) and the Department of Agricultural Land Development (DALAM) from the Laos Ministry of Agriculture and Forest. Around 90 participants participated to this event, who originated mainly from Asian countries (Lao, Thailand and China) but also from developed countries, such as France, Germany, and the USA. The WS was co-organized and funded by several projects linked to research on rubber plantations in SEA such as the French Institute of Research for Development (IRD, via two main partnerships tools the PPR SELTAR (http://irdseltar.wordpress.com) the LMI LUSES project (www.luses/ird.fr), the Hevea Research Platform in Partnership (http://hrpp.ku.ac.th), the Project on "Sustainable Rubber Cultivation in the Mekong Region – SURUMER" (https://surumer.uni-hohenheim.de) and the Green Rubber Project (GRP, World Agroforestry Centre (ICRAF), GIZ project #13.1432.7-001.00).

Natural rubber plantations play an important role in Southeast Asia as an economic, social and politic contributor. Rubber plantations also have a large effect on the environment, including soil and water sustainability and biodiversity. These impacts need to be addressed and evaluated at a regional scale, which constitutes the aim of this event. The other goals of this WS were to initiate a connection between the main projects working on this theme in the Greater Mekong Subregion (GMS), define state of the art of research on sustainability of natural rubber production in the GMS and identify options for future collaborative research and potential interventions.

The first day of this four day workshop started with an official welcome ceremony. The welcome address was conducted by representatives of the hosting institutions, including NUoL and NAFRI. It was followed by an informative keynote presentation by Professor Silinthone (NUoL) on socio economic aspects of Lao agriculture with a special emphasis on rubber plantation.

The second day started with short presentations of the rubber research initiatives in the Mekong region (SURUMER, GREEN RUBBER) together with a presentation of the different partnerships tools of IRD (LMI LUSES AND PPR SELTAR) and CIRAD (HRPP). The rest of the day was devoted to two main thematic (i) water and carbon dynamics in rubber landscapes, introduced with a keynote presentation by F. Gay from CIRAD on CO_2 fluxes and net primary production, and (ii) rubber management and soil biological functioning, introduced with a keynote presentation by A. Brauman from IRD on the impact of agricultural practices on soil biodiversity.

The third day was dedicated to two further plenary sessions; (i) modeling the impact of climate change and land management on latex yield, livelihoods and ecosystem services, introduced with a keynote presentation by Rhett Harrison (GRP) from ICRAF on rubber impacts on ecosystems and ecosystem processes, and (ii) socio-economic impacts and stakeholders, which was the longest session of the meeting with 13 presentations. This session was introduced with a keynote presentation from Professor J.M. FOX from University of Hawaii, who gave an overview of the expansion of rubber in mainland Southeast Asia.

The last day consisted of a group meeting comprising 25 representatives from participating rubber research projects and institutions dedicated to the development of proposals. This resulted in three proposals which will be submitted to different funding agencies (EU, ABD etc.).

In summary, this WS considerably exceeded the expectations of the organizers. All the participants noticed the high scientific level of the presentations and the potential of synergies between the different projects involved at the GMS scale. This WS will contribute in the near future to the development of future collaborative research that will better define more sustainable rubber management options in this GMS area.

As an immediate action, the organizing institutions agreed to set up an exchange platform covering ongoing research activities on rubber in mainland SE Asia. This platform will promote scientific exchange at a regional level, enable scaling up of interventions through the participating national level extension agencies, and coordinate the release of policy briefs at a regional level. In addition, it is hoped that the platform can provide opportunities for training and capacity development. (*PPR-SELTAR)*

Pic. 1 - Group picture of Workshop participants

SURUMER Contributions to Workshop 'Sustainability of Natural Rubber in the 21st Century – Current status and future Outlook'

No.	Authors	Title	Session Title	Subproject
1	Cadisch, G. & Langenberger, G.	SURUMER- Sustainable Rubber Cultivation in the Mekong Region	RUBBER RESEARCH INITIATIVES IN THE MEKONG REGION	PMC
2	Yang, X.	Carbon storage potential of rubber plantations of different age and elevation in Xishuangbanna	WATER AND C- DYNAMICS IN RUBBER LANDSCAPES	SP1
3	Lang, R.	Respiration in rubber plantation and rainforest indicate different processes during the rainy season	WATER AND C- DYNAMICS IN RUBBER LANDSCAPES	SP1
4	Liu, H.	Effect of water erosion and land management on the soil carbon stock of intensive rubber plantation in Xishuangbanna	WATER AND C- DYNAMICS IN RUBBER LANDSCAPES	SP1
5	Blagodatskiy, S.	Simulation of rubber development and latex production with the model LUCIA (Land Use Change Impact Assessment)	MODELLING IMPACT OF CLIMATE CHANGE & LAND-MANAGEMENT ON YIELD, WELFARE AND ECOSYSTEM SERVICES (ESS)	SP1
6	Langenberger, G.	Rubber intercropping – trends and perspectives	SOCIO-ECONOMY AND STAKEHOLDERS	SP5
7	Wang, J. & Aenis, T.	Stakeholder analysis in sustainable regional development project: Experience from rubber cultivation in SW China	SOCIO-ECONOMY AND STAKEHOLDERS	SP8
8	Waibel. H. (with Min, S. & Jikun, H.)	Long term income risks for small scale rubber farmers in Xishuangbanna, China	SOCIO-ECONOMY AND STAKEHOLDERS	SP9

back to top

COP 12 of CBD in October 2014

The 194 member states of the Convention on Biological Diversity (CBD) held their 12th Conference of the Parties (COP 12) in Pyeongchang, Korea, from October 6th -17th, 2014.

At the same time, the Nagoya-Protocol on Access and Benefit Sharing entered into force and held its first official meeting.

The fourth edition of the Global Biodiversity Outlook (GBO 4) was presented as a midterm evaluation on the way to reach the CBD 2020-targets. GBO 4 concludes that there is slight progress in implementation but that most of the 20 targets will be missed unless much stronger actions is taken by states and societies immediately. The target to safe coral reefs until 2015 will be missed entirely.

COP 12 formulated a set of decisions, including on:

- doubling the resources for implementing the CBD from 2015 onwards until 2020 (based on an average of the resources spent 2006-2010)
- an action plan on coral reefs as especially endangered ecosystems
- a list of about 150 marine areas that meet the criteria for being of ecological and biological significance (and therefore a basis for a future system of marine protected areas)
- the need to better understand the chances and risks of living organisms created through synthetic biology.

The Institute for Biodiversity Network (ibn) used the opportunity of COP 12 to perform two side events in cooperation with four different regional projects (SURUMER, LEGATO, INNOVATE, COMTESS), where project scientists related their results to the Strategic Plan and the 2020-Tragets of the CBD.

Dr. Cornelia Paulsch,
Institute for Biodiversity - Network e.V.
07.11.2014

Pic. 2 - COP 12 participants in Pyeongchang (Korea)

Left to right : Dr. Martin Maier (Comtess); Drs. Axel and Cornelia Paulsch (ibn); Prof. Dr. Arne Cierjacks (Innovate); Dr. Mark Cotter (Surumer); Dr. Stefan Hotes (Legato/Jaguar).

back to top

Rainfall Simulator Experiment

During the last three months the regular experiments like soil erosion collection, water level and turbidity monitoring were conducted as usual. Additionally a new experiment to study the soil infiltration with a rainfall simulator was conducted in October. The portable rainfall simulator was not fixed in field but installed when it was used. This instrument was set to simulate a precipitation of 40mm/h intensity. The investigated precipitation area was 2m². When the rainfall simulator started working, the actual precipitation, runoff and soil moisture were recorded simultaneously, so the soil saturated infiltration rate could be calculated. This experiment was conducted at five different sites, two sites in Naban, three sites in Mandian.

Besides, in order to investigate the understory plants within rubber plantations of different age 1m*1m quadrats were installed and inspected. With the help of pictures of each plant of different species further scientific analysis will be done in the office. *(SP1, Liu)*

Pic. 3 and 4 - Rainfall simulator experiment in rubber plantation

back to top

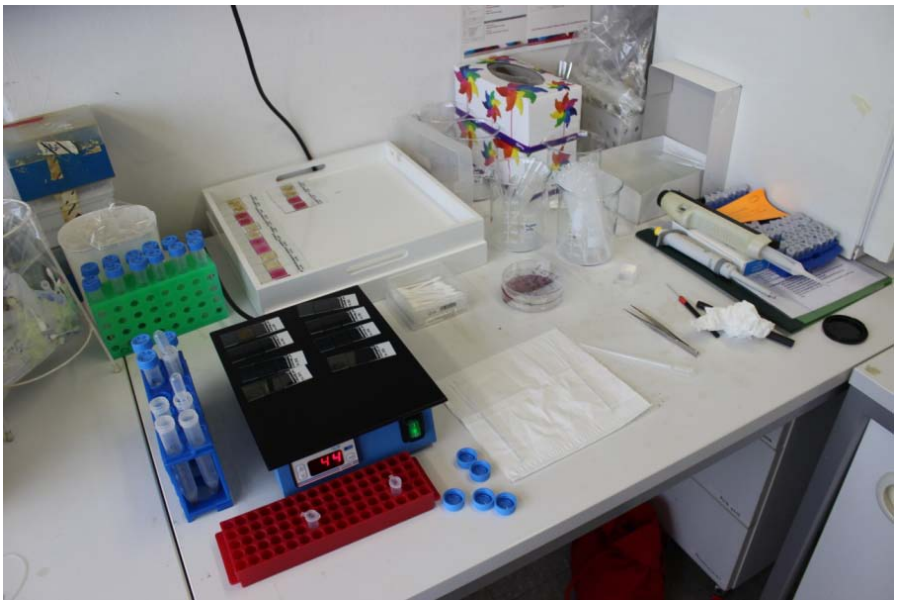
Analysis of honey from different honeybee species in NRWNNR

In addition to bee species diversity analysis and species/habitat relationships, the study of pollen content in honey provides important information on the ecology and feeding requirements of wild bees. Honey characteristics are the result of the combined influence exerted by several factors including: composition of local flora, flowering phenology, species selection by honeybee foragers and the timing of human operations for harvesting. Consequently, there is a strict link between the pollen types present in the honey and the plant species flowering in the foraging area. Thus, pollen becomes a natural marker, indicating the plants on which bees foraged and/or visited. The identification of pollen, collected by bees, can be used to determine the plant species that a possibly being pollinated, source zones, food sources, the habitats visited, the diversity of the habitat and diversity of the food sources. The resulting data can also provide important information for future management strategies, e.g. for increasing the beneficial pollinators within a cropping system, habitat, region, etc.

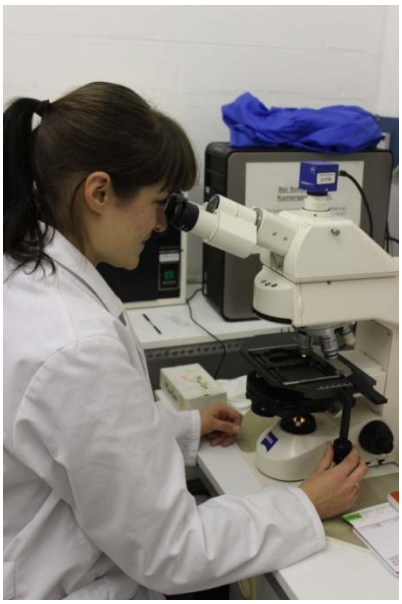
The focus of honey analysis presently conducted by SP4 is on wild bee species (*Apis* and *Trigona* species) which are used by farmers for honey production. After the beekeepers collected the honey from their beehives in 2014, 200 g samples per hive were committed to us. Additionally, honey samples collected by Jing Xin LIU in 2009 are included to our sample set for the comparison of forage plant spectra of honeybees due to land use change in the last years. Accordingly, the aims of this work are: (1) to identify the forage plant spectra of the different *Apis* and *Trigona* species in the area of NRWNNR; (2) to compare the forage plant spectra of different honeybee species in order to find species-specific preferences; (3) to compare the forage plant spectra of different years.

In the laboratory, honey samples are presently prepared for identification and counting of pollen grains (Pic. 5). Under the microscope (Pic. 6) a total of 1000 pollen grains of each sample will be counted and identified for the determination of relative frequencies of the forage plant species. Picture 7 shows an example of pollen from a stingless bee (*Trigona*) honey sample.

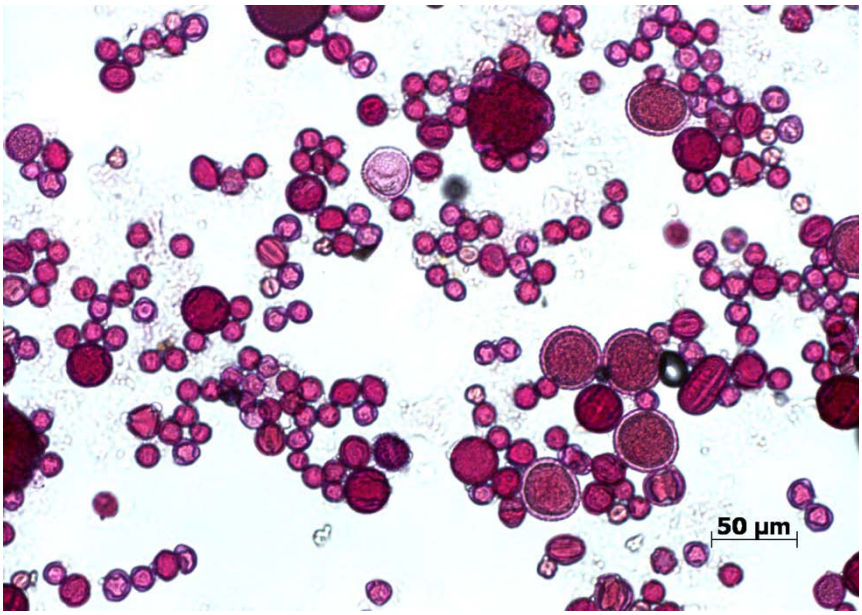
For the identification of pollen types and the interpretation of pollen spectra, a collection of reference pollen slides and preparation of a photographic atlas is indispensable. For the preparation of the pollen reference collection, all flowering plant species in a radius of 600 m around each selected beehive in NRWNNR were examined and identified between April and July 2014.



Pic. 5 - Laboratory equipment for pollen preparation from honey samples.



Pic. 6 - Pia busy with pollen analysis at the microscope.

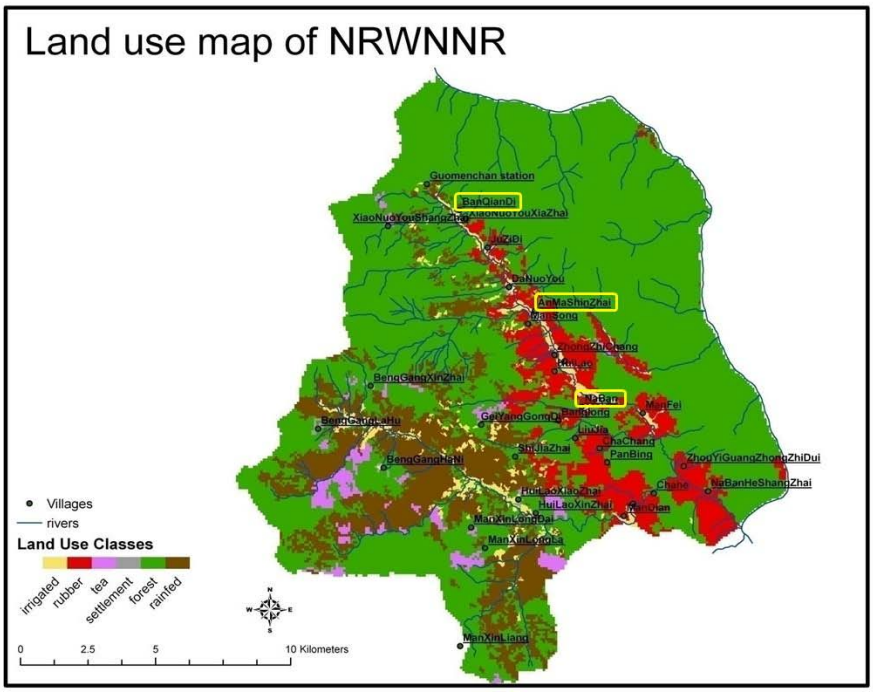


Pic. 7 - Pollen of different plant species from a *Trigona* bee honey sample prepared on a microscope slide.

back to top

Agro-ecological diversification- SP5 together with NRWNNR realizes the establishment of demonstration plots with an alternative rubber intercropping concept

In September the implementation of three intercropping demonstration plots of 10-15 mu each could be realized in the Naban River Watershed National Nature Reserve. The localities have been chosen in a way that they represent the current elevational gradient of rubber growing in NRWNNR. They are located at Naban Village, near the Naban Research Station (ca. 700m a.s.l.), near AnmaXinZai, along the main road (ca. 800m a.s.l.), and around BanQianDi village (ca. 900m a.s.l.) (Pic. 8). Thus, all sites are easily accessible and thus very well suited for demonstration purposes.



Pic. 8 - The location of the three agro-ecological diversification plots within the NRWNNR.

The objectives of the demonstration plots are to show options to combine rubber production with additional benefits and to show long-term income options beyond rubber, respectively. Additionally, the diversification should have positive impacts on Ecosystem Services beyond livelihood aspects and improve ecological value without compromising income. Finally, it is intended to encourage discussions on alternative rubber management options between and within different stakeholder groups, especially concerning the topic of ecologic but also economic sustainability.

To that purpose a set of selection criteria has been developed based on the analysis of intercropping evolution and current practices. Based on these criteria three tree species have been identified for the integration into existing rubber plantations. All three species have in common that they are native, rare and protected Chinese plants. One, *Nyssa yunnanensis* / 云南蓝果树 (Pic. 9), has been selected only for protective reasons, while the other two species, *Parashorea chinensis* / 望天树 (Pic. 10), and *Taxus yunnanensis* / 云南红豆杉 **(**Pic. 11) also provide valuable timber and medicinal products, respectively.

As next step a baseline inventory will be conducted assessing the survival rate and growth performance after the first dry season in spring next year.

Pic. 9 - *Nyssa yunnanensis*, an extremely rare (IUCN: critically endangered) and protected plant – it is only known from a small spot near Puwen, Jinghong County.

Pic. 10 - *Parashorea chinensis*, one of the very few representatives of the Dipterocarpaceae tree family in China. The Dipterocarpaceae are prominent representatives of the tropical rain forest and find their northernmost extension in Yunnan Province. Due to overexploitation the species became very rare (IUCN: endangered), and only a handful of mature trees still exist in China, e.g. near Mengla.

Pic. 11 - *Taxus yunnanensis*, a tree species providing valuable timber but also a source of an anti-cancer drug. Due to these properties it has been heavily exploited and is nowadays classified as endangered (IUCN).

back to top

SP6 work progress- field work about to be finalized

Our field work is almost at its end, we are finalizing the transect survey and finished the camera trap survey at the forest boundary. Currently, apart from walking our last transects, we are running a camera trap survey deeper inside the natural forest in cooperation with teams from the Khlong Saeng Wildlife Research station, the Tai Rom Yen National Park and from the Forest Department of the King's Project. With this we want to compare if wildlife species abundance and diversity differs inside the forest and outside the forest in the cultivated landscape. The task of setting the cameras deep inside the forest is not easy, as the terrain is quite difficult and will take at least seven hours for one camera. The output seems to be worth it though; we got nice pictures of small carnivores such as leopard cats and martens, but also macaques and porcupines and a wide range of other small mammals.

Unfortunately, another elephant died recently in the area, this time a baby elephant. No humans were involved though, the little one was killed by an adult male for unknown reasons.

Better news come from our MSc student Alvaro who had a successful field work time and we are looking forward to the promising outcomes of his data analysis. His task was to identify attractive elephant foraging spots and assess the potential of wildlife corridors as mitigation measures for human-elephant conflicts in rubber-dominated landscapes. He will finish his work by March. *(SP6)*

Pic. 12 - Mission accomplished! We are looking forward to many nice pictures of wildlife this camera will hopefully take.
Pic. 13 - Every hand is needed when setting a camera high up in the tree.

back to top

Interaction with stakeholders- Training on camera trap handling and survey design conducted

Preceding our joint camera trap survey, SP6 conducted training on camera trap handling and survey design for rangers of Tai Rom Yen NP, research assistants from Khlong Saeng Wildlife Sanctuary and staff of the Forest Department of the King's project. Moreover, we took different rangers with us on our transect surveys and introduced them to basic transect sampling methodology to assess wildlife distribution in cultivated and protected areas.

We scheduled a final local stakeholder meeting in December before we finish our field work to present our findings and give a project overview to the staff of Tai Rom Yen NP, Khlong Saeng Wildlife Research station and any other interested parties.

We are also creating a poster on our SP aims and outcomes that will be exhibited at the National Park Headquarters for informing tourists and locals about the wildlife presence in protected and cultivated lands. *(SP6)*

Pic. 14 - Perfect scenery for SP6's training on camera trap handling and survey design for rangers of Tai Rom Yen NP, research assistants from Khlong Saeng Wildlife Sanctuary and staff of the Forest Department of the King's Project.

back to top

Presentations given at conferences

In August 2014 SP6 gave a presentation at the Conference of the Society for Conservation Biology in Malaysia, entitled “Human-elephant conflicts in rubber-dominated landscapes surrounding protected areas in Southern Thailand”. The talk was based in the session 6 “Moving towards effective mitigation of human-elephant conflict – are we really progressing at all?” and was very well received. During this time SP6 had the opportunity for intensive meetings with our Chinese and Thai counterparts for planning current and future joint research. Right after, SP6 presented at the International Conference on Rubber in Phatthalung, South Thailand, entitled “Can Rubber Cultivations Serve as Wildlife Habitat? A Case Study from Tai Rom Yen National Park, Thailand”. This talk also was very well received, and SP6 received the award for an “outstanding oral presentation”. Discussions on wildlife biodiversity were fruitful in the mainly rubber-dominated scientific environment of this conference. *(SP6)*

Pic. 15 - From left to right: Assoc. Prof. Kasem Asawatreratanakul (Vice President of Thaksin University), Franziska Harich (SP6, University of Hohenheim), Dr. Thavorn Juntachote (Dean of the Faculty of Technology and Community Development, Thaksin University), Julie-Anne Tangena (Institut Pasteur du Laos & Durham University) and Dr. Uraiwan Tongkaemkaew (Administrative chairman, Faculty of Technology and Community Development, Thaksin University).
Ms. Harich and Ms. Tangena received the awards for an “outstanding oral presentation” at the International Conference on Rubber in Phatthalung, South Thailand, in August 2014.

back to top

Third Regional Stakeholder Workshop

The third Regional Stakeholder Workshop was held successfully in Jinghong on 6th August 2014, SURUMER in collaboration with our local partner NRWNNRB. Regional stakeholders (administration, industry, research institutes) from Xishuangbanna Prefecture and SURUMER representatives attended the workshop. As a response to stakeholders' demand which they articulated on the last workshop and during interviews, the focus of this workshop was to present and discuss preliminary research results in this case by SP1 and SP3 on carbon, soil erosion and safe drinking water. Furthermore, the general framework for a training unit was analyzed jointly with the aim to identify target groups, their training needs and the format of a training. Participants showed great interests which resulted in a fruitful discussion. "It is great having such chance to communicate with researchers, Xishuangbanna government is also looking for sustainable development strategies of rubber cultivation, for instance we just launched the Environmental-friendly Eco-rubber Plantation Project, we should keep in touch and share information, and think about further collaboration", said Director Li from Bio-industry Development Office. "This workshop was really different. In other projects results were presented only, but no time for discussion. Here we had the possibility to talk to each other, give feedback and contribute. I think this should be repeated", said another official after the workshop. *(SP8)*

Pic. 16 - Third stakeholder workshop in the conference room of the NWRNNRB building

back to top

Interviews for values chain study conducted

Around 40 qualitative expert interviews have been conducted in July and August 2014 with actors of the rubber sector in the region - processors, middlemen, farmers, state farms, village heads, input suppliers as well as various related bureaus. Topics of the interviews were the functioning and governance of the rubber value chains, actors' perception of risks, as well as the present and future competitiveness of the local rubber sector. After the analysis – which is still ongoing – results will be presented and discussed in the next stakeholder workshop in 2015. *(SP8)*

back to top

Second study project in preparation

Following up on the successful first study project of 2013 on "Rubber cultivation and livelihood –stakeholder analysis in Xishuangbanna" (see report at http://edoc.hu-berlin.de/oa/books/reZf1RwMqPrk/PDF/29jESAnTGIY2.pdf), a second one on "willingness to accept land use changes" is now in its preparation phase. The field phase is planned for March 2015 in the Naban River Watershed National Nature Reserve. *(SP8)*

back to top

SURUMER contributions to 'Tropentag 2014'

No.	Authors	Title	Poster	Oral	Institutions involved	Subproject
1	Häuser, I., Cotter, M., Sauerborn, J.	Trade-Off Analysis between Single Ecosystem Services - State of the Art		x	Institute for Plant Production and Agroecology in the Tropics and Subtropics (380b), University of Hohenheim, Germany	PMC
2	Liu, H., Blagodatskiy, S,; Cadisch, G.	Effect of Water Erosion and Land Management on the Soil Carbon Stock of Intensive Rubber Plantation in Xishuangbanna, South-west China	x		Institute for Plant Production and Agroecology in the Tropics and Subtropics (380a), University of Hohenheim, Germany	SP1
3	Yang, X., Blagodatskiy, S., Cadisch, G., Xu, J.	Carbon Storage Potential of Rubber Plantations of Different Age and Elevation in Xishuangbanna	x		Institute for Plant Production and Agroecology in the Tropics and Subtropics (380a), University of Hohenheim, Germany; Key Laboratory of Economic Plants and Biotechnology, Kunming Institute of Botany, CAS; World Agroforestry Centre, China & East Asia Office c.o. Kunming Institute of Botany, CAS, China	SP1
4	Lang, R., Blagodatskiy, S., Cadisch, G., Xu, J. C.	Soil Respiration in Rubber Plantation and Rainforest Indicate Different Processes During the Rainy Season	X		University of Hohenheim, Institute for Plant Production and Agroecology in the Tropics and Subtropics (380a), Germany Kunming Institute of Botany, The Chinese Acadamy of Sciences, Center for Mountain Ecosystem Studies, China	SP1
5	Rajaona, A. Schappert, A., Stürz, S., Cao, K., Asch, F.	Comparison of Leaf Area Index Measurements in Rubber Plantations and Secondary Forest in Xishuangbanna, China	X		Institute for Plant Production and Agroecology in the Tropics and Subtropics (380c), University of Hohenheim, Germany Chinese Academy of Sciences, Xishuangbanna Tropical Botanical Garden, China	SP2
6	Wang, J., Aenis, T.	The Role of Stakeholder Analysis for Sustainable Development: Experiences from Rubber Cultivation in Southwest China	x		Humboldt-Universität zu Berlin, Agricultural Extension and Communication Group, Germany	SP8
7	Aenis, T., Langenberger, G., Wang, J., Cadisch, G.	Adaptive Management of Inter- and Transdisciplinary R&d Projects: Case Study in Southwest China	X		Humboldt-Universität zu Berlin, Agricultural Extension and Communication Group, Germany	SP8
8	Shi, M., Hermann, W., Jikun H.	Rubber Intercropping Adoption of Smallholders in Xishuangbanna, China	x		Institute of Development and Agricultural Economics,Leibniz Universität Hannover, Germany; Center for Chinese Agricultural policy, CAS, China	SP9

back to top