

**TBI Symposium 2019,
20 and 21 February, Älgsalen, Umeå
SUMMARY**



Program

List of participants

Other remarks

20 February

9:00 Welcome and practical information

9:05-9:30: **TBI science, where are we now?** By the TBI team
Joost Keuskamp, Taru Sandén, Mariet Hefting and Judith Sarneel published the standardized method in 2013. Since then we have deepened our understanding of the pro's and cons' of the method (for instance incubation duration), and we can show that some of our assumptions have been met. Many TBI initiatives across the world created a database with about 3000 locations, spread over the different biomes. Further, many citizen science initiatives have been initiated such as teatime4science, teatime4schools, Tea in OTC and teatime in NETLAKE.



The presentation can be watched 10-20 March 2019 on www.teatime4science.org/symposium

9:30 – 9:50 Raúl Ochoa-Hueso

Climatic and microbial controllers of litter decomposition under nutrient enrichment in global grasslands

9:50 – 10:10 Hao Tang

Plant-ecotype control on soil decomposition processes in response to sea level rise

10:10 – 10:30 Marshall McDaniel

Decomposition of Household Items (including Rooibos and Green Tea) as Low-cost Indicators of Soil Health

10:30 – 10:50 Lorenzo Brusetti

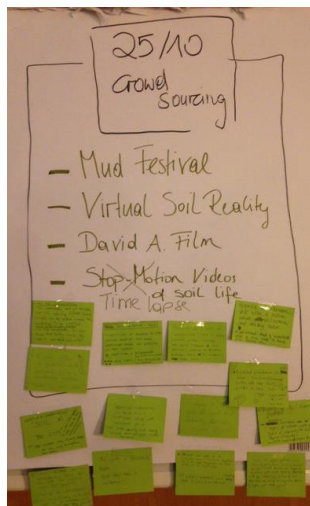
Microbial communities in litter: a comparison between local and external substrates along a European transect

10:50 – 11:00 coffee break

11:00 – 12:30: Discussion groups and breakup in groups preparing for the review article

12:30-13:30: Lunch

13:30-17:00 **How to communicate your soil science (using tea bags)** Elena Kinz



The workshop included a thorough overview of the field of science communication: Definitions, Areas and Formats. Elena Kinz explained the deficit model and framing model that can help to tailor science communication. After a tea break we moved on to citizen science, with the example of teatime4schools. The workshop finished with the 25/10 crowdsourcing exercise, which resulted in cool ideas for activities. A pdf of the powerpoint of the presentation as well as the results of the 25/10 exercise are available by emailing Judith.sarneel@umu.se.

19:00 Conference dinner at 'Hunger och Törst'

21 February

9:00 Welcome

9:00-9:45: **Ellen Dorrepaal, Sylvain Monteux, Frida Keuper, James Weedon**

Interacting controls on decomposition in thawing permafrost ecosystems



Abiotic environment, quality of litter, and composition and functioning of the decomposer community are generally thought to control decomposition rates. Understanding their roles is crucial for predicting carbon-feedbacks to our climate and has therefore received much attention. Thereto, often one factor is varied while the other are kept constant. Yet, in ecosystems undergoing climate change, factors controlling decomposition will not operate in isolation and therefore likely interact, but such ecosystem-mediated controls remain poorly understood. We investigated how climate warming and associated changes in plant community can alter the microbial community in thawing permafrost soils, and how these interactions may affect

microbial decomposition, using three experiments. In the laboratory, we observed that functional limitations of microbial communities can hamper in vitro decomposition of old Yedoma permafrost, which was relieved by inoculation with exotic microorganisms. Microbial community structure thus matters for permafrost decomposition. In a garden experiment with five typical permafrost tundra plant species grown in Sphagnum peat or newly-thawed permafrost peat, we then investigated how soil microbial community depends on plant species. In Sphagnum peat topsoil, the plant species did not harbour different rhizosphere bacterial communities, but they did when grown in sub-surface permafrost peat. Plant species might thus differentially affect functional microbial limitations in thawing permafrost soil, and climate change-induced vegetation changes might alter microbial decomposition in thawing permafrost. Finally, we showed in a field-scale in situ permafrost-thaw experiment in a palsa peatland, how 10-years of thawing and colonization by deep-growing sedge roots caused colonization of thawing permafrost soil by overlying soil microbes. In turn, bacterial community structure, but not root colonization, helped soil quality to explain variation in soil respiration, but these relations interacted with the decadal deep thaw treatment. Our results suggest that climate-plant-decomposer interactions play an important role in the functioning and feedbacks of thawing permafrost.

9:45 – 10:05 Ada Pastor

Plunging into Arctic waters: using the TBI to assess decomposition in Greenland streams

10:05 – 10:25 Michele Carbognani

Soil moisture and vegetation type modulate the influence of temperature on litter decomposition

10:25 – 10:45 Andrea Lopez

Drought affects the summer litter decomposition rate of six central North American Grasslands

10:45-11:00 coffee break

11:00 – 11:20 Nina Filippova

Decomposition in Mukhrino field station, Western Siberia

11:20 – 11:40 Taru Sandén

Citizen scientist perspective on TBI

11:40-12:00 FastForwardPresentations. 3 min talks and 2 min for questions.

1. **Guillaume Patoine** iSBio Consortium: exploring global soil biodiversity and function distribution
2. **Marina Partain** Evaluation of tea bag index (TBI) in predicting decomposition rates in Black Mangrove (*Avicennia germinans*) sediment
3. **David Watson** Measuring resource availability for ground-foraging insectivores
4. **Rafaella Canessa Mesías** New insights into litter decomposition from a reciprocal transplant and a functional diversity experiment in Chile.

12:00-13:30: Lunch

Poster presentations

Rafaella Canessa Mesías, van den Brink L., Saldana A., Rios S.R., Bader M.Y.: Climate or litter quality? The right question is when.

Rafaella Canessa Mesías, van den Brink L., Saldana A., Rios S.R., Bader M.Y.: Litter diversity effects vary between plant communities in Chile

13:30-16:30 Working group meetings

1. TBI in warming experiments. We discussed the current state of the experiment. Suggestions will be presented in the next draft.
2. TBI synthesis article. Three groups were formed that tried to summarize different areas of TBI.
'Microbial ecology' worked on summarizing perspectives on how TBI can be used in understanding microbial ecology. Can we come up with a standardized sampling protocol, or has the field not developed enough?
'Citizen science' worked on getting an overview of all the Citizen science initiatives in which tea bags have been used and aims to draft recommendations based on the '10 principals in citizen science'
'Different systems' worked on summarizing practical hurdles in doing TBI in different systems
'tea material' vacancy

The TBI team will create a repository in which includes

- all papers that cite the keuskamp 2013 paper.
- a excell document in which group membership and task assignment can be indicated
- a road map to a joined publication.

We aim to have a draft ready by the end of the year.

All symposium participants are invited to join this paper, and

13:30-17:30 Skiing trip on Mariehemsängarna.

Participants

We could invite 5 young researchers to participate with support of IUSS



This is a full list of the participants and their institutes

Ada	Pastor	Aarhus University
Andrea	Lopez	University of New Mexico
Anna-Lena	Lindskog	Teknats kansli (UMU)
Anne	Honsel	Umea University
David	Watson	Charles Sturt University
Elena	Kinz	Open Science - Life Sciences in Dialogue
Ellen	Dorrepaal	Climate Impacts Research Centre, Umeå Universitet
Guillaume	Patoine	iDiv: German Centre for Integrative Biodiver...
Hao	Tang	University of Hamburg
Hjalmar	Laudon	SLU
Johan	Asplund	Norwegian University of Life Sciences
Joost	Keuskamp	Biont Research
Judith	Sarneel	Umea University
Juha	Alatalo	Qatar University
Kristina	Viklund	Umea University
Lorenzo	Menichetti	SLU (Ecology)
Lorenzo	Brusetti	Free University of Bolzano
Maaike	Bader	University of Marburg, Germany
Marina	Partain	Texas A&M University - Corpus Christi
Mark	Bonner	SLU
Marshall	McDaniel	Iowa State University
Martin	Bolinder	SLU
Mary Frances	Hoover	Susan G. Komen North Texas
Michele	Carbognani	University of Parma
Nina	Filippova	Yugra State University
Rafaella	Canessa	University of Marburg
Raúl	Ochoa-Hueso	University of Cádiz
Sanghyun	Kim	SLU
Sarah	Dudigan	University of Reading
Shun	Hasegawa	Swedish University of Agricultural Sciences
Sue	Benham	Forest Research
Taru	Sandén	AGES/Dept. for Soil Health and Plant Nutrition

Other remarks

Umeå University produced a short video on the symposium:

<https://vimeo.com/320207853>

Next year we will organize an online meeting. Different timeslots and matchmaking events to discuss about your tea project with experts and other decomposition ecologists in your field of interest.

This meeting will be facilitated by Umeå University and the KBCon – Focus Environment at KBC. More information follows soon.