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 than 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 cofee 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’
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.

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

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

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

Decomposition in Mukhrino field station, Western Siberia

Citizen scientist perspective on TBI
11:40-12:00 Fast Forward Presentations. 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. **Rafaela 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

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


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 Oliveras  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 Biodiversity Research
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
Rafaela Canessa  University of Marburg
Raúl Ochoa-Hueso  University of Cádiz
Sanghyun Kim  SLU
Sarah Duddigan  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](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.