



Arctic fungi

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Projects

BioFun (2013-2017)

SUCC (2020-2023)

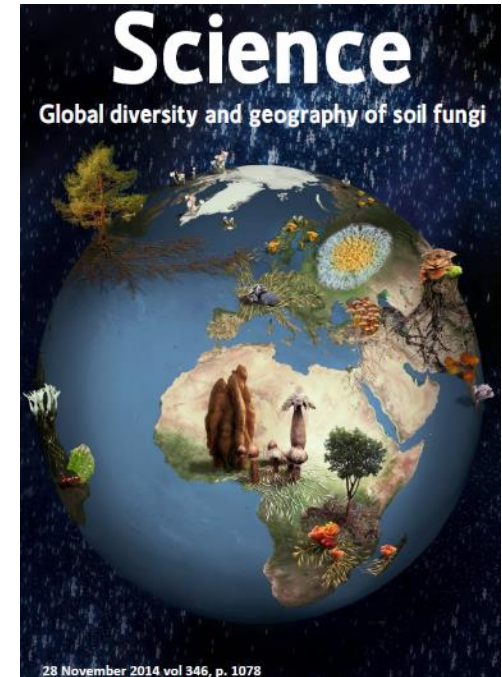
Project BioFun (NO-EE; 2013-2017)

- Databasing and indexing arctic fungi
- Climate change effects on arctic fungi

⇒ Arctic fungal diversity is comparable to other biomes

⇒ Functional diversity is among the greatest

⇒ Vegetation-mediated climatic effects



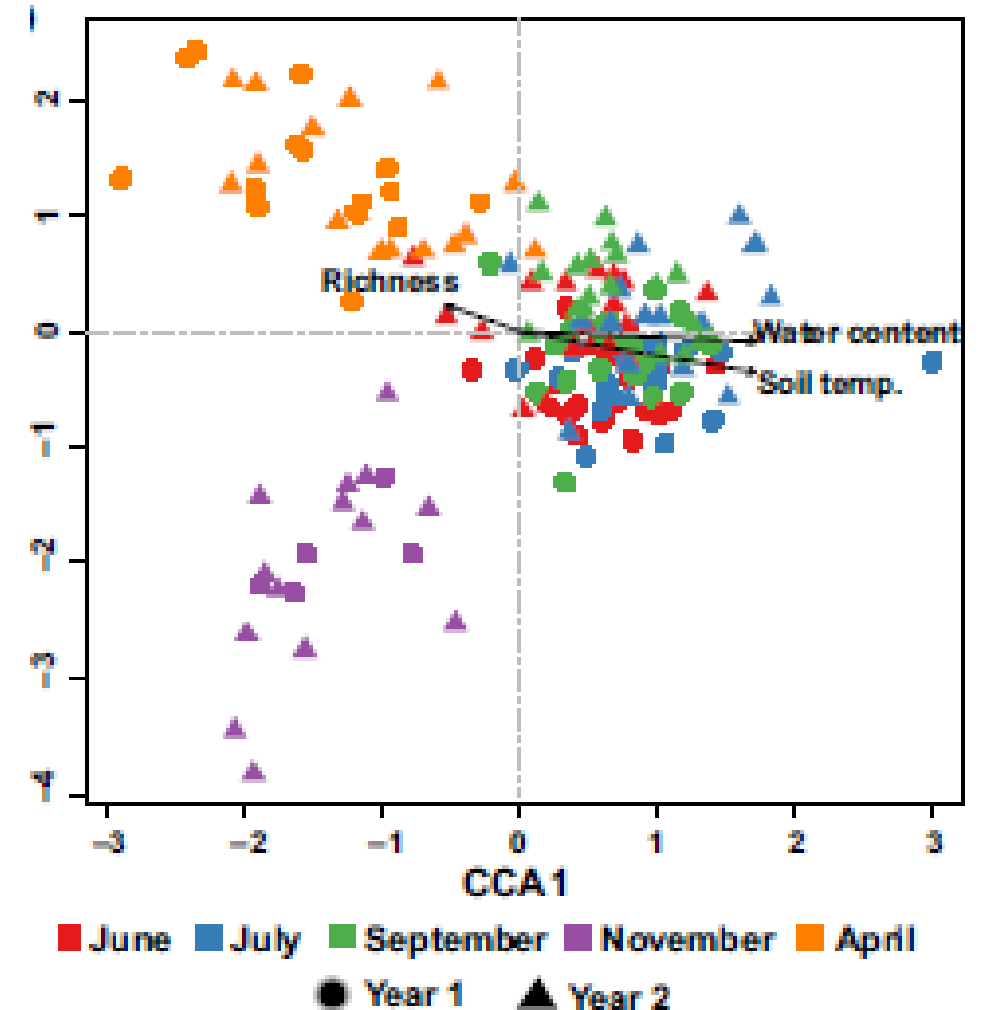
Tedersoo L et al. 2014. Global diversity and geography of soil fungi. *Science* 346: 1078.

Kõljalg U et al. 2016. Digital identifiers for fungal species. *Science* 352: 1182.

Bahram M et al. 2018. Structure and function of global topsoil microbiome. *Nature* 560: 233.

SUCC results in Svalbard

- Field surveys and experiments
 - ⇒ No effect of geographic distance on microbial composition
 - ⇒ Limited, inconsistent effects of increased snow and melting time
 - ⇒ Unexpected seasonality effects on fungal composition



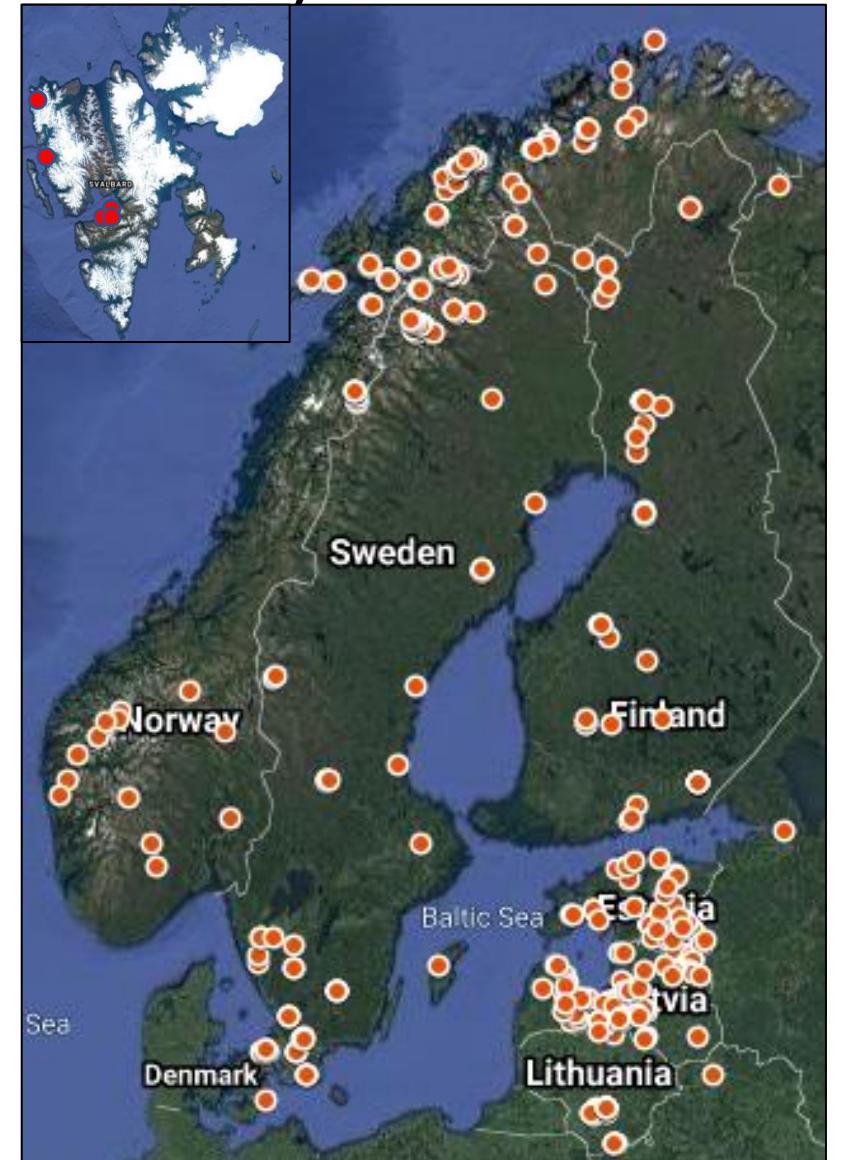
Mundra S et al. 2015. Temporal variation of *Bistorta vivipara* associated ectomycorrhizal fungal communities in the High Arctic. *Molecular Ecology* 24: 6289.

Project SUCC (NO-EE-LV-LT; 2020-2023)

- Soil carbon vulnerability to global change
- Plant species and mycorrhizal type effects on soil carbon retention
- Afforestation/coppicing effects on soil carbon storage
- Biogeography of soil fungi in North Europe

>2000 vegetation plots sampled

Data analysis on-going

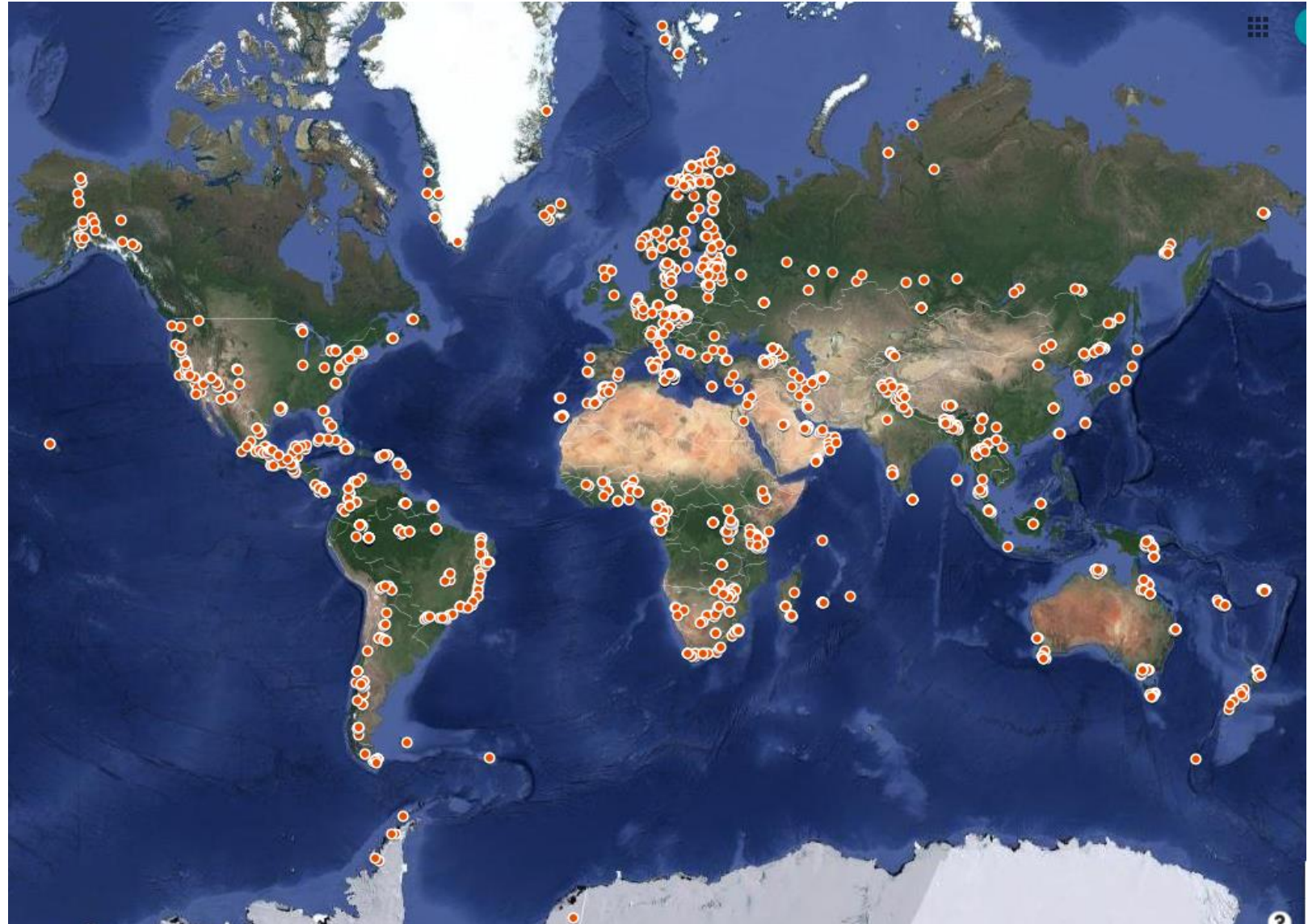


SUCC as a part of Global Soil Mycobiome consortium

- Polar areas in global context
- Endemicity patterns

Work in progress

- ⇒ Low endemicity in boreal and arctic zone
- ⇒ Arctic mycobiome more diverse than Antarctic
- ⇒ Many shared species between the polar regions



Future plans

- Invasive fungal pathogens of terrestrial plants
- Invasive fungal and microeukaryote aquatic pathogens
- How do the (southern) invaders link to natural communities?

Thank you!

MMC team of Estonian universities

Vladimir Mikryukov, Sten Anslan, Rein Drenkhan
Alvar Räägel, Ahto Agan, Lauri Urbalu

BioFun team

Havard Kauserud (UiO)
Pernille Bronken Eidesen (UNiS)
Sunil Mundra (UiO/UNiS)

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Jelena Ankuda, Kestutis Armolaitis (LAMMC-LT)
Lars Vesterdal (UCop-DM)
Taina Pennanen (LUKE-FI)
Mohammad Bahram (SLU-SE)

Norway-Baltic Financial Mechanism

- BioFun
<https://sisu.ut.ee/emp265/main-page-0>
- SUCC
<https://sisu.ut.ee/emp422succ/>



Danish-Dutch-Estonian collaboration

- SilvaNova
<https://ign.ku.dk/english/silvanova/>



Estonian Research Foundation

- PRG632



European Funding

- Mobilitas+ annual grants
- EcolChange Centre of Excellence

