



HOKKAIDO UNIVERSITY

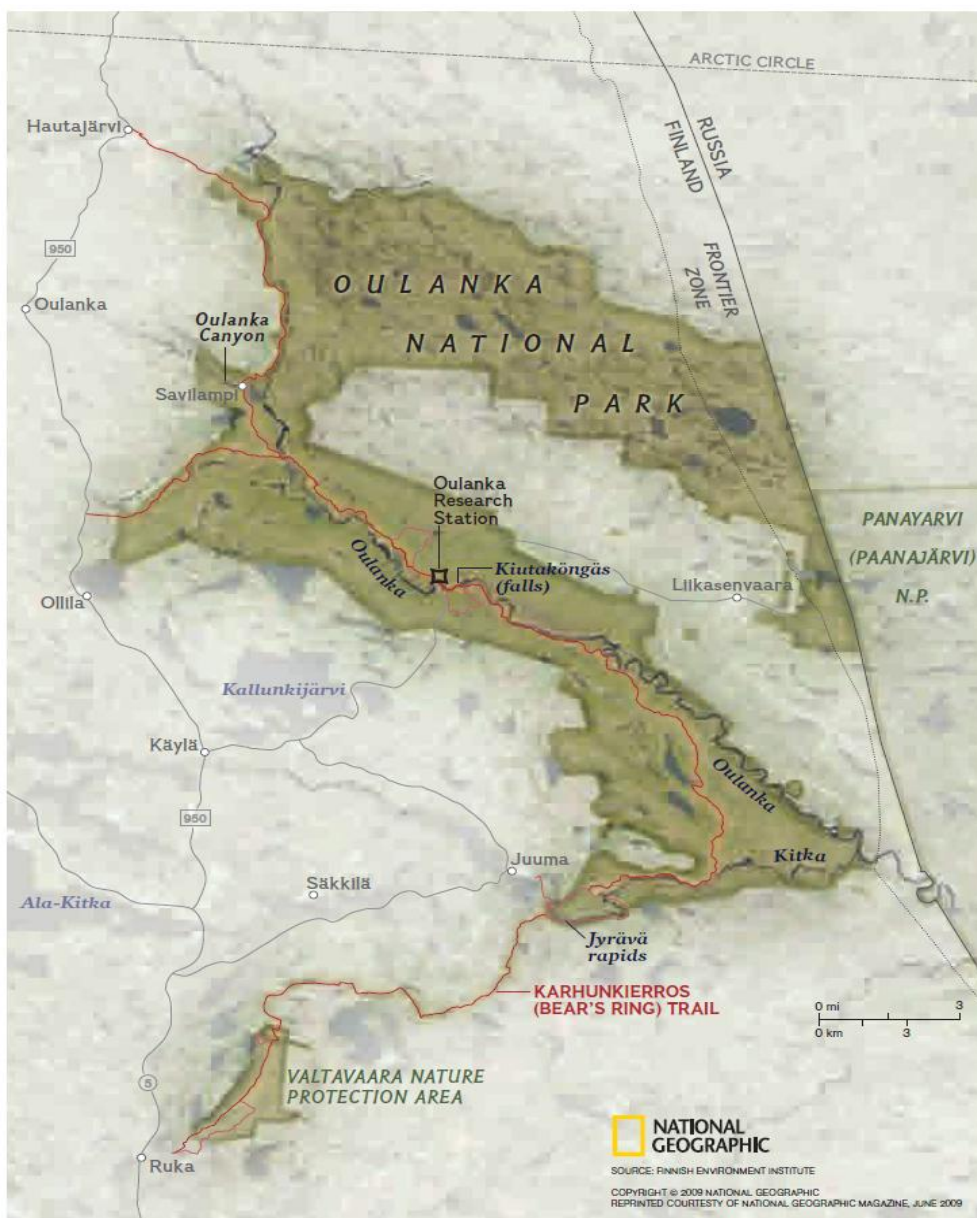
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Author(s)	Paavola, Riku
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Oulanka Research Station



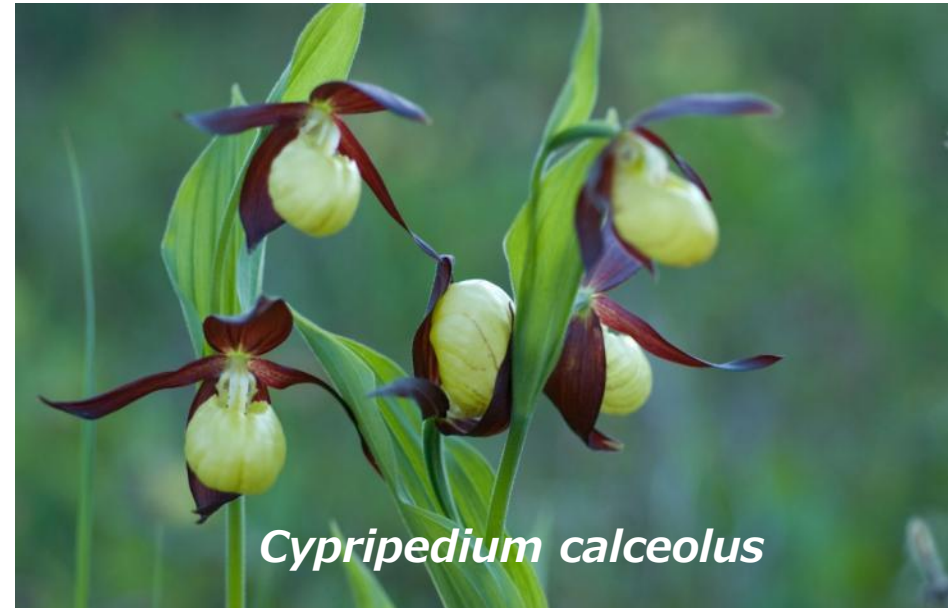
- Field station of the University of Oulu; part of Thule-institute since 2007
- Field research and education; regional activities in northeastern Finland
- Founded in 1966
- Top quality modern laboratory, microscope and AV facilities
- Accommodation for 95 people
- Personnel
 - ✓ 5 permanent and semi-permanent employees - one academic, technical and laboratory, secretary and kitchen
 - ✓ 5-15 temporary employees by employment funds, projects and trainee programs



- Northeastern Finland
- North Kuusamo in the Oulankajoki river valley
- in Oulanka National Park
- c. 25 km south of Arctic Circle
- Within northern boreal forest zone, Taiga
- 170 000 visitors per year

Biodiversity hotspot

1. Rich bedrock and soil—dolomite rocks
 2. Varying topography
 - a variety of microclimates and habitats
 3. Unique mixture of eastern, southern and northern species
- ⇒ very diverse flora and fauna
- ⇒ rare and endangered plant species



Tasks: Scientific research

To enhance and promote scientific research and education in the region

- Research
 - To offer a state-of-the-art research facilities for environmental research
 - To carry out own research
- Cooperation with research institutes
- Own monitoring and other studies
- **Research by research groups**



Tasks: Education and teaching

To enhance and promote scientific education in the region

- ✓ To offer an excellent teaching environment
- ✓ Six or more field courses per year (biology, geography...)
- ✓ To develop and organise education in cooperation with other organisations

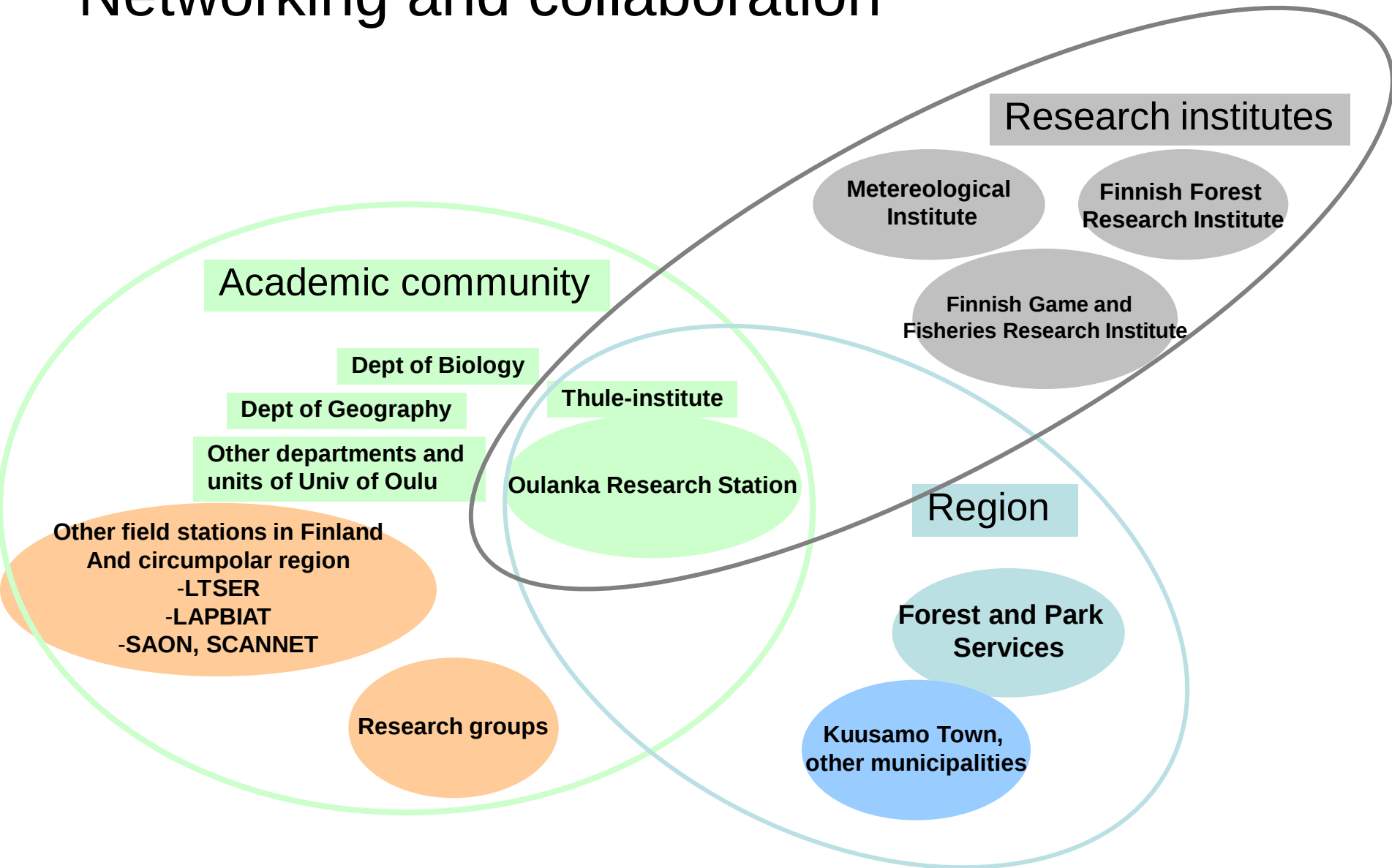


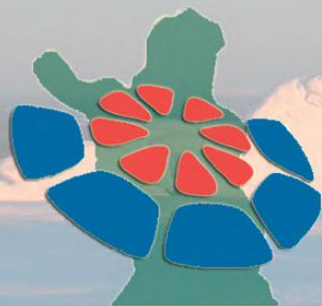
Tasks: Regional activities

- ✓ To act as a bridge between the whole university and the region
- ✓ Main partners
 - Kuusamo Town, Metsähallitus, Forest Research Institute, Game and Fisheries Research Institute
 - The general public

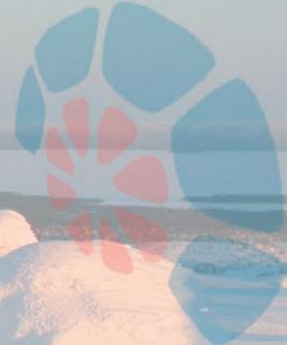


Networking and collaboration





Northern Research Platform



Northern Long-Term Socio-Ecological Research Platform (Northern LTSER platform)

— a tool for collaborative research in Northern Finland

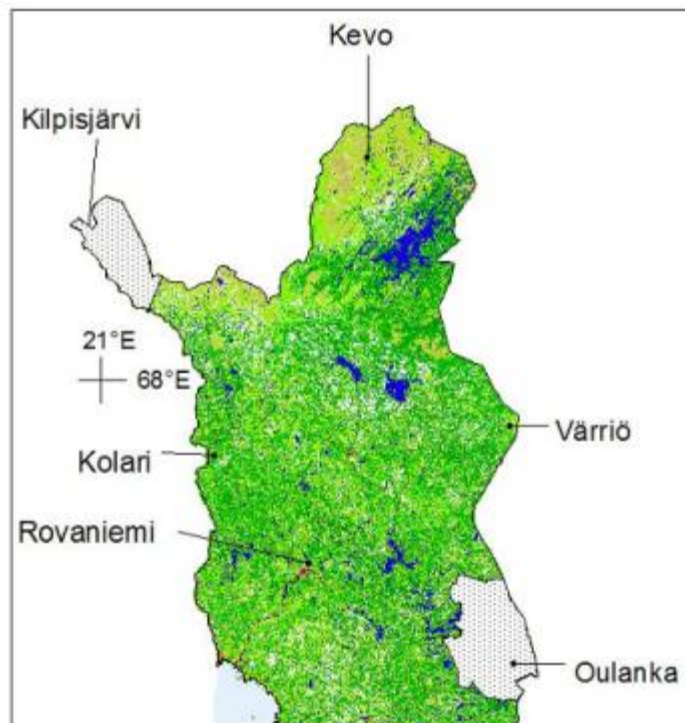
The Finnish Long-Term Socio-Ecological Research Network



LTER-site



LTSER-site





INTERACT

International Network for Terrestrial Research and Monitoring in the Arctic

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THIS SITE IS UNDER CONSTRUCTION
New site will be launched in the end of May

Connection to SCANNET



INTERACT was proposed by the existing SCANNET circumarctic network of field stations. The cooperation among partners has a long history especially between the European members, resulting from funding in FP5 during 2001-2004.

What would you want on an outreach web page for the arctic and sub-arctic?

This short survey asks about possible web-based outreach components. By completing the survey, we will be able to provide what you want/need from the INTERACT website. [Click here](#) for survey

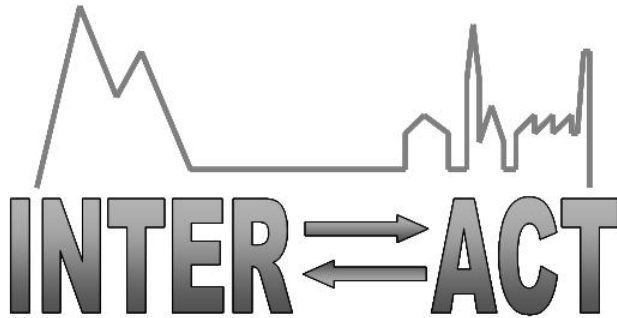


CALL FOR PROPOSALS
-CLOSED



The call supported by the INTERACT

Welcome to



World attention is now focussed on the Arctic because of its rapidly changing climate that is faster than elsewhere, and changes in land use, socio-economics and globalisation of economies and cultures. In particular, geopolitical issues related to increased access to natural resources have alerted many nations to the growing importance of the Arctic

Key pre-requisites of improving environmental observation in the Arctic are to sustain the current observing capacity of existing infrastructures and their networking activities throughout the Arctic.

This project has a main objective *to build capacity for identifying, understanding, predicting and responding to diverse environmental changes throughout the wide environmental and land-use envelopes of the Arctic.*

<http://www.eu-interact.org/>

- A network of arctic and subarctic research stations
- Spans from Russia to Greenland, mostly European
- More calls coming this year
- Oulanka has ~600 user days
- Covers travel costs, logistic support and access to infrastructure and data, but no salaries



PLANT POPULATION DYNAMICS

Professor Juha Tuomi, University of Oulu, Finland

Senior researcher Elizabeth Crone, Harvard University, USA

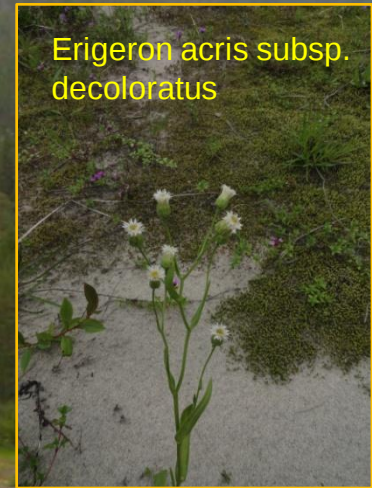
PhD Rui Zhang, Harvard University, USA

PhD Anne Jäkäläniemi, Finnish Forest and Park Service, Finland

Calypso bulbosa

METAPOPULATION DYNAMICS

Population survival
Spatial dynamics
Habitat dynamics



ORCHIDS

Population survival
Dormancy
Pollination biology



Epipactis atrorubens



Calypso bulbosa



Cypripedium calceolus

Stream Ecology Research

*University of Oulu
Finnish Environment Institute
Oulanka research station*

prof. Timo Muotka

doc. Heikki Mykrä

director, PhD Riku Paavola

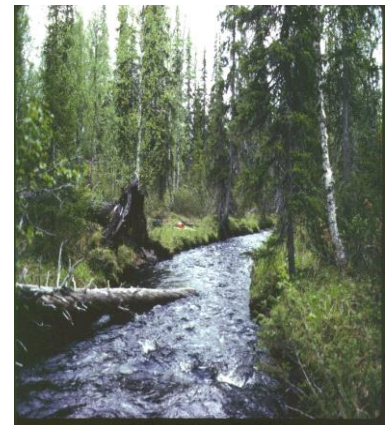
Post docs:

FT Anna Astorga (OY)

FT Jari Ilmonen (Metsähallitus)

FT Pauliina Louhi (OY)

plus several PhD & MSc students



Stream restoration

Effects of restoration on

- stream biodiversity and ecosystem functions
- salmonid production
- 6 dissertations completed, 2 in preparation
- mostly in collaboration with Finnish Game & Fisheries Research Institute



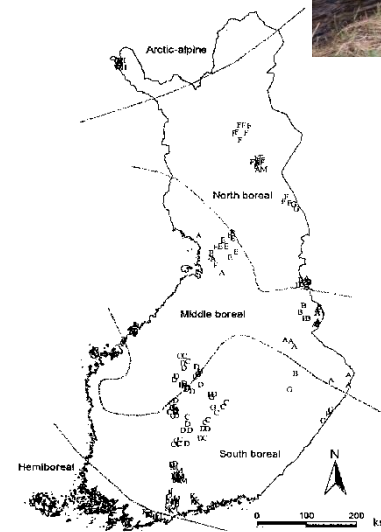
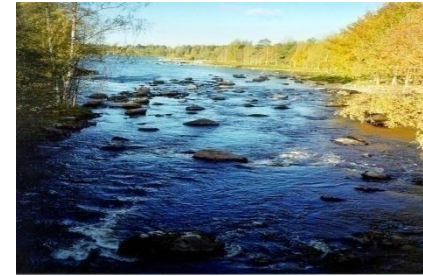
Biological invasions in boreal waters

- brown trout (native) vs. brook trout (introduced)
- is brook trout an invasive species in boreal streams? does it have harmful effects on brown trout?
- effects of Canadian water weed (*Elodea canadensis*) in lakes
- 2 dissertations



Freshwater macroecology and conservation biology

- roles of local vs. regional factors on diversity
- natural vs. human-induced temporal variability of stream communities
- benthic invertebrates, diatoms, fish, bryophytes, bacteria, fungi
- are terrestrial reserve networks representative of freshwater biodiversity?
- 5 dissertations completed, 4 in preparation
- large spatial (and temporal) scales; much international collaboration



Long-term ecology of freshwaters

- 24 headwater streams with yearly biological monitoring (benthic invertebrates, diatoms and bryophytes) and continuous logging of water level and temperature
- 10 springs with similar monitoring
- 13 headwater stream sites with yearly electrofishing of designated areas for fish data
- 5 locations on headwater streams with constant trapping of emerging stoneflies (Plecoptera) during the open-water season (goes back to early 70'ies in some cases)
- data series on water chemistry on a large number of streams, rivers, ponds and lakes dating back to 1966 in some cases



Current / future at Oulanka

- Science & photography
(Thematic network, UofArctic)
 - First workshop in
September 2012
- Collaboration in Russia
(Paanajärvi National Park)
 - Good contacts established
 - Activity started in 2012



Current / future at Oulanka



-Wireless research network being constructed in Oulanka National Park

- Automatic, year-around water quality monitoring of Lake Kitkajärvi
- Land-use and changes in land-use
 - effects of forestry on stream biota





Thank you!