HOKKAIDO UNIVERSITY

Title	Activities and research at the Oulanka Research Station
Author(s)	Paavola, Riku
Relation	フィンランド-日本 共同シンポジウムシリーズ : 北方圏の環境研究に関するシンポジウム2012(Joint Finnish-Japanese Symposium Series Northern Environmental Research Symposium 2012). 2012年9月10日-14日. オウル大学、オウランカ研究所, フィンランド.
Issue Date	2012-09-10
Doc URL	https://hdl.handle.net/2115/51377
Type	conference presentation
File Information	13_RikuPaavola.pdf

Hokkaido University Collection of Scholarly and Academic Papers : HUSCAP

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

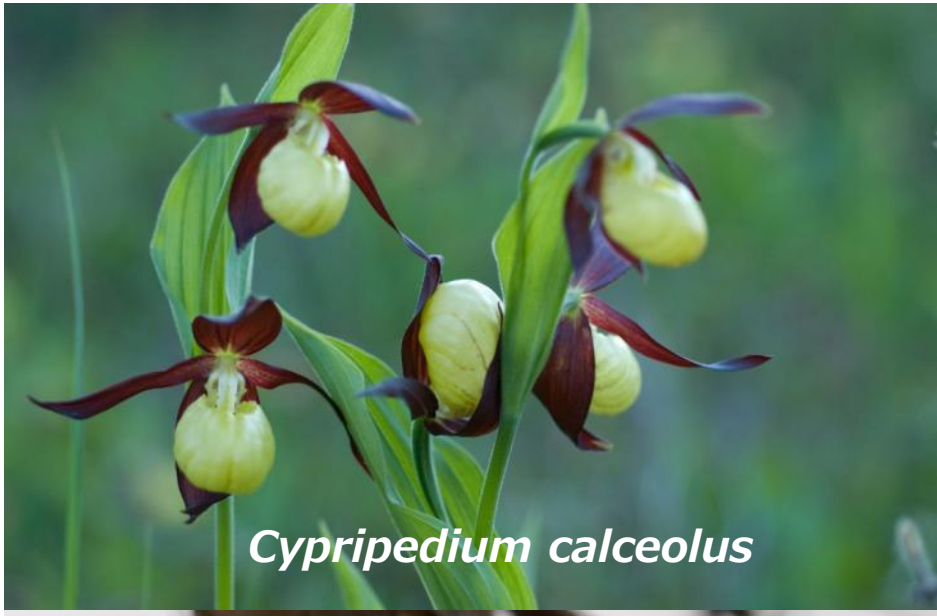
- Northeastern Finland
- North Kuusamo in the Oulankajoki river valley
- in Oulanka National Park
- c. 25 km south of Arctic Circle
- Within northern boreal forest zone, Taiga
- 170 000 visitors per year

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

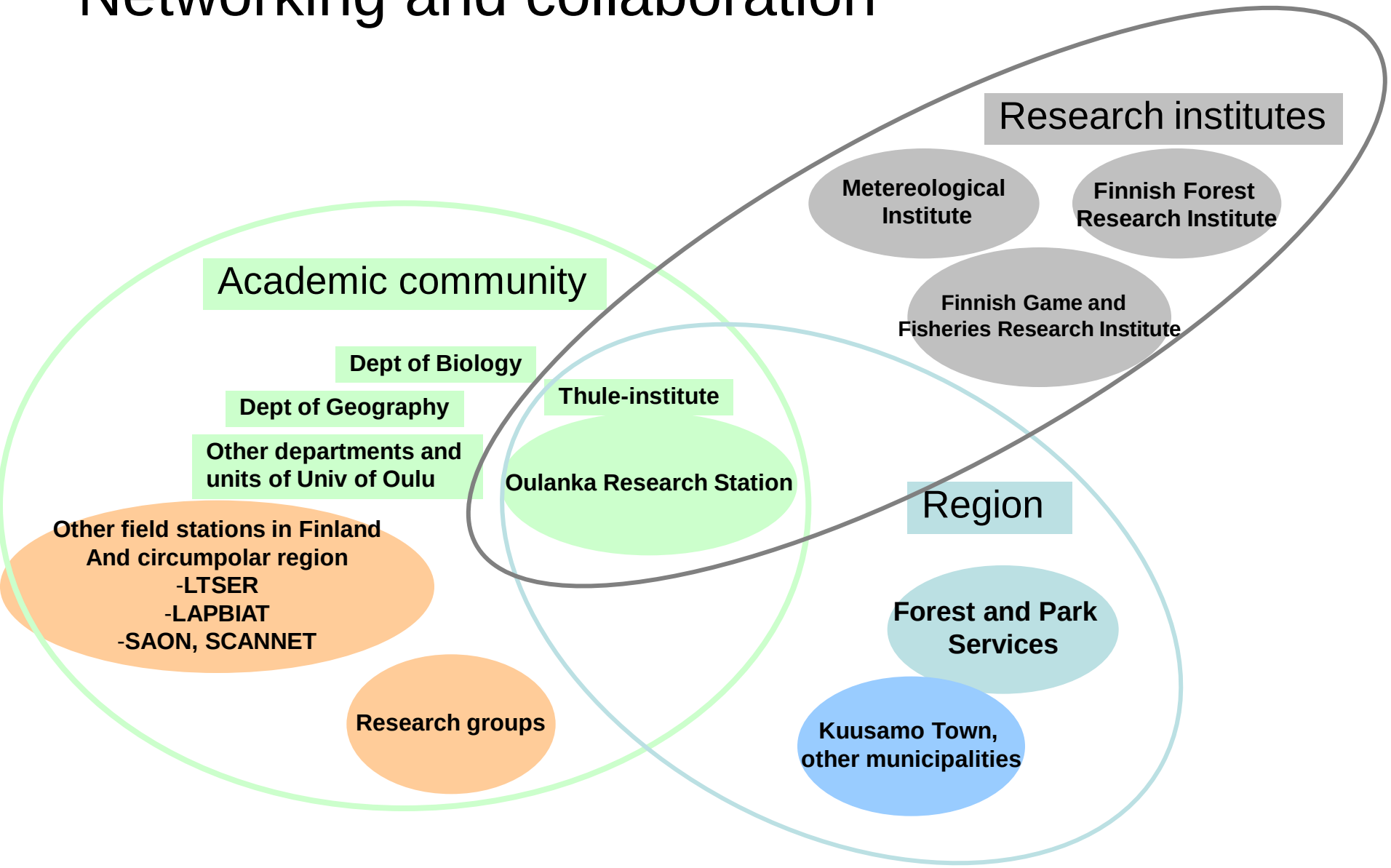
To enhance and promote scientific education in the region

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

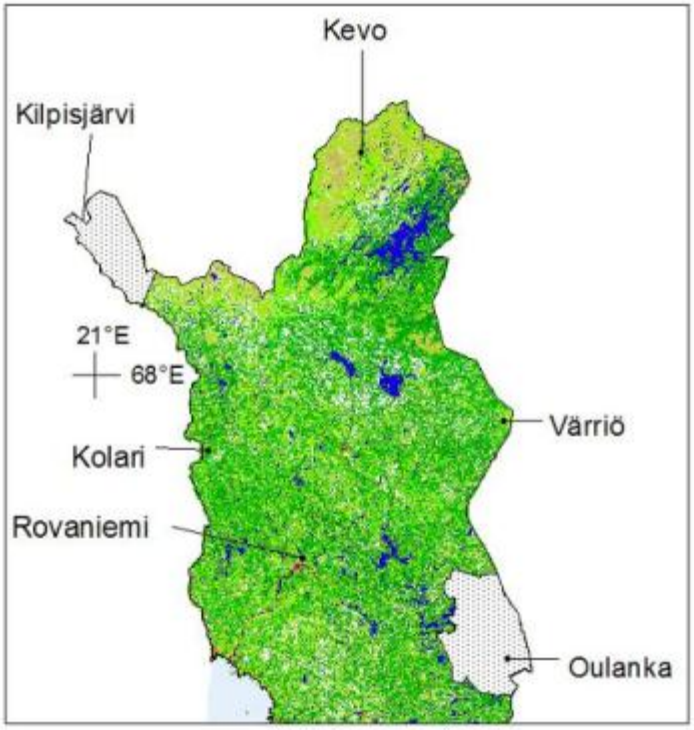
– a tool for collaborative research in Northern Finland

The Finnish Long-Term Socio-Ecological Research Network

finLTSER

* LTER-site

LTSER-site



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

-A network or 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

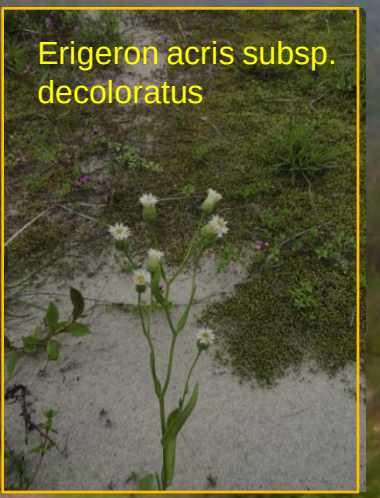
PLANT POPULATION DYNAMICS

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


Erigeron acris subsp. decoloratus

Silene tatarica

ORCHIDS

Population survival
Dormancy
Pollination biology

Epipactis atrorubens

Calypso bulbosa

Cypripedium calceolus

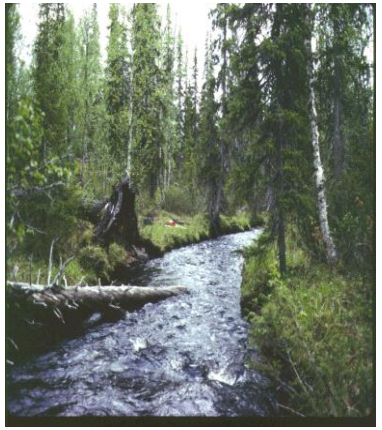
Stream Ecology Research

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

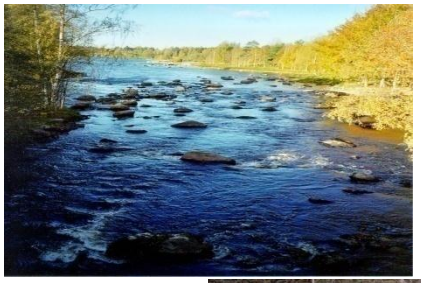
- stream biodiversity and ecosystem functions
- salmonid production
- 6 dissertations completed, 2 in preparation
- mostly in collaboration with Finnish Game & Fisheries Research Institute

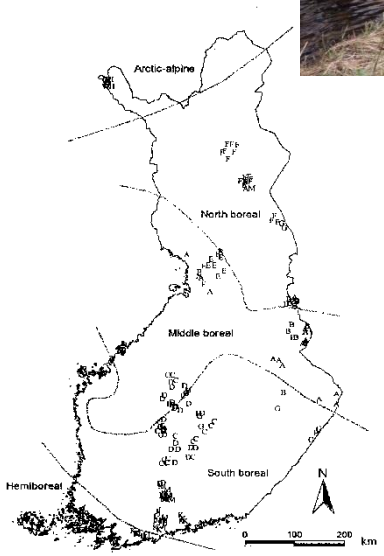
Biological invasions in boreal waters

- 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

-Automatic, year-around water quality monitoring of Lake Kitkajärvi

-Land-use and changes in land-use

- effects of forestry on stream biota

-Wireless research network being constructed in Oulanka National Park

Thank you!