

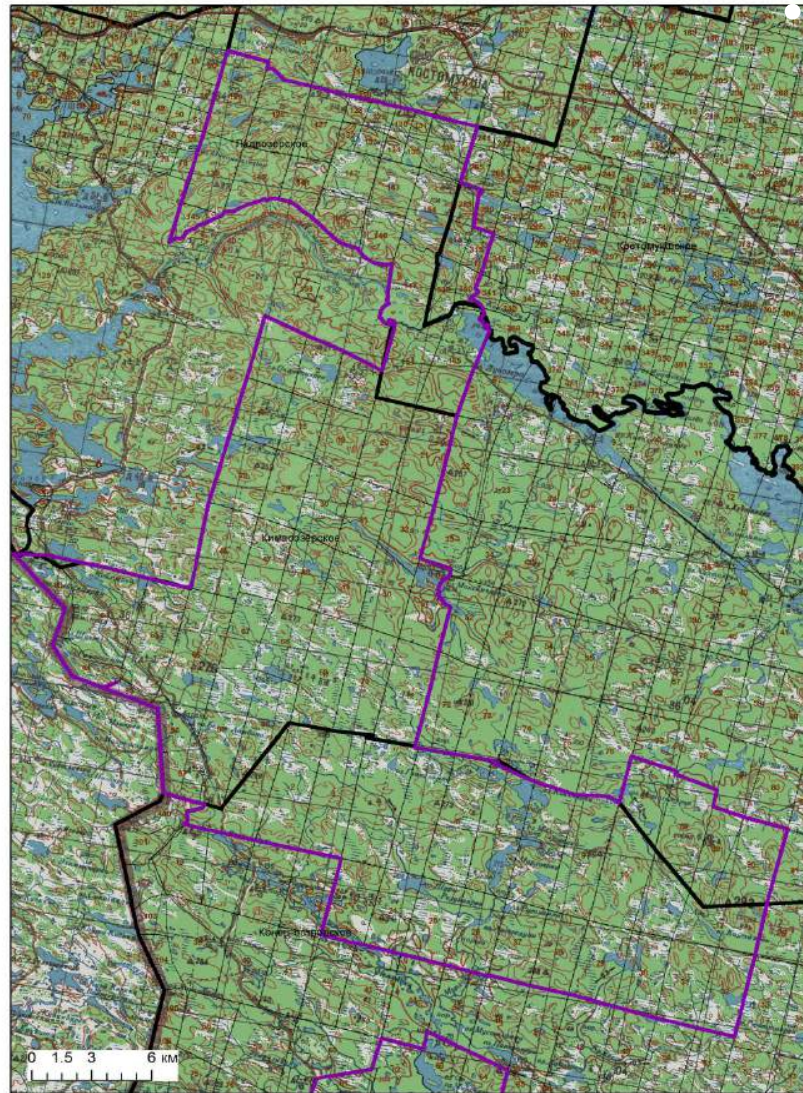
Threatened species of lichens, fungi and insects in pristine forests of Maksimjärvi area (Muezerka Municipality, Republic of Karelia)

**Jevgeni Jakovlev, Olli Manninen & Raimo
Heikkilä**

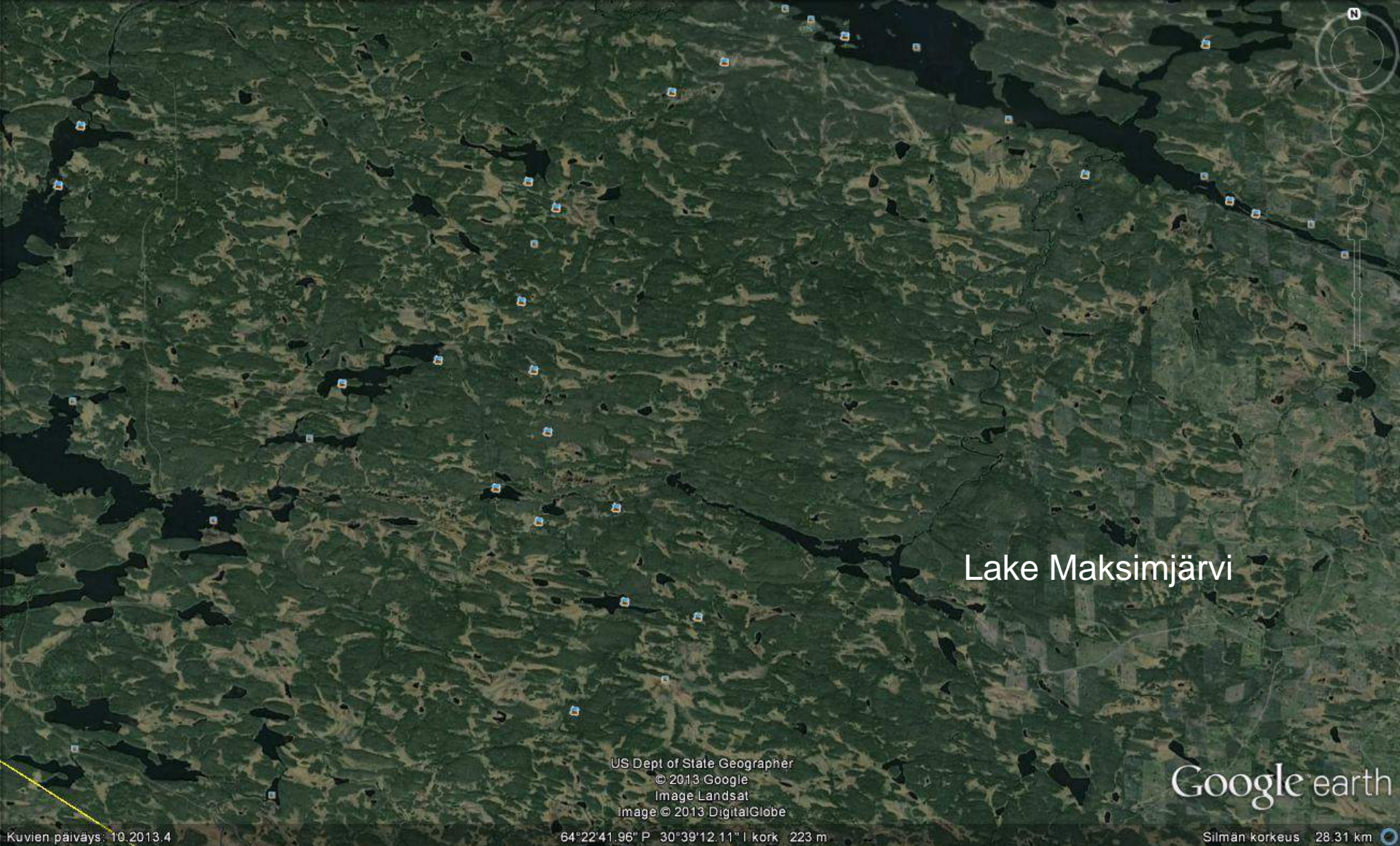
Finnish Environment Institute (SYKE)



Maksimjärvi intact forest area (ca 20-30 km from the Finnish-Russian State border)



Maksimjärvi, or *Mujezerka forest* is located on the administrative border of Kostamus and Mujejärvi regions of the Republic of Karelia. It is the largest (over 100,000 hectares) surviving territory of natural state, pine-dominated, high productive forests south to north-boreal subzone in the whole of Europe (Gap-analysis 2011).



A Google Earth image of Lake Maksimjärvi region

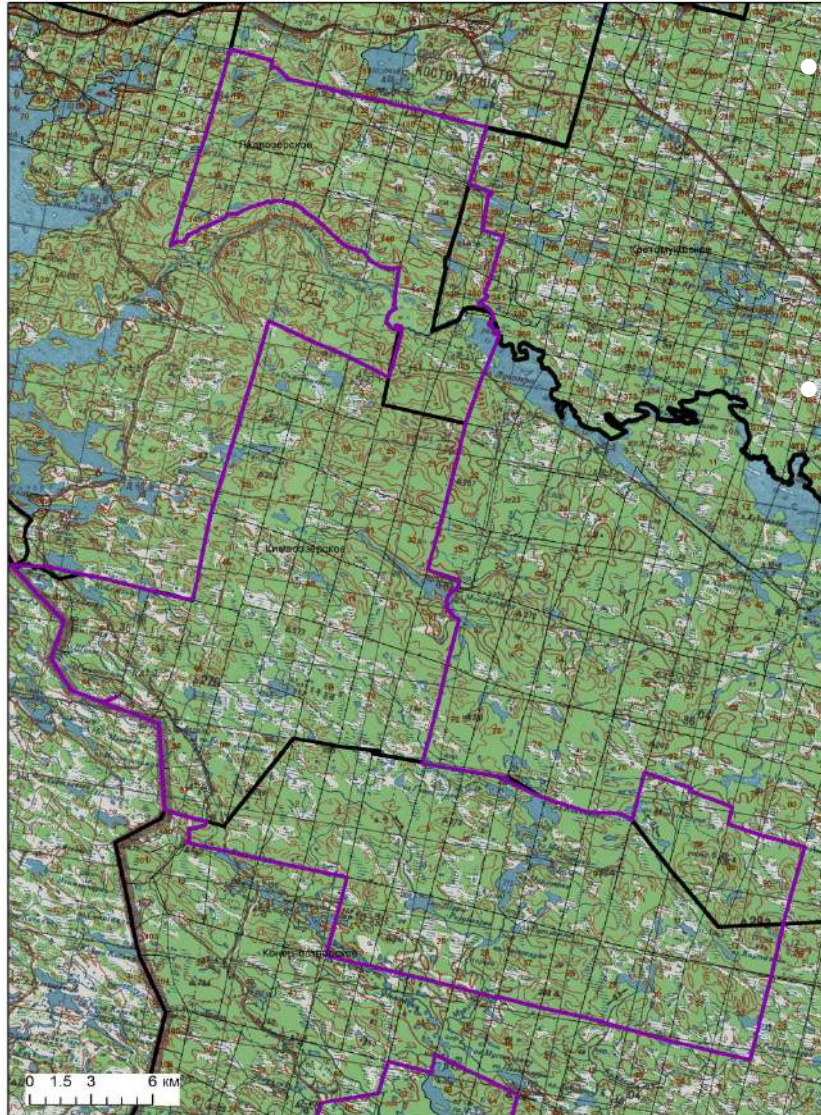
HISTORY OF STUDIES

- **First biodiversity studies in the region of Lake Maksimjärvi were conducted by Finnish NGO's 1995-1996**
- **A line inventory showed that most of the forests in the area were intact without any traces of loggings or slash and burn cultivation**
- **Species inventories were not made systematically**
- **In 1997 northern margins of the area near Kostamus Nature Reserve vascular plant species were studied in connection with a LIFE+ project**
- **In 2010 the northern margins of the area near Lake Luvajärvi were visited by Raimo Heikkilä and Olli-Pekka Tikkanen for forest history studies**

- **The species studies were continued by SYKE in 2013 as a part of Karelia ENPI CBC project "Intellectually driven management of natural resources of Green Belt of Fennoscandia"**

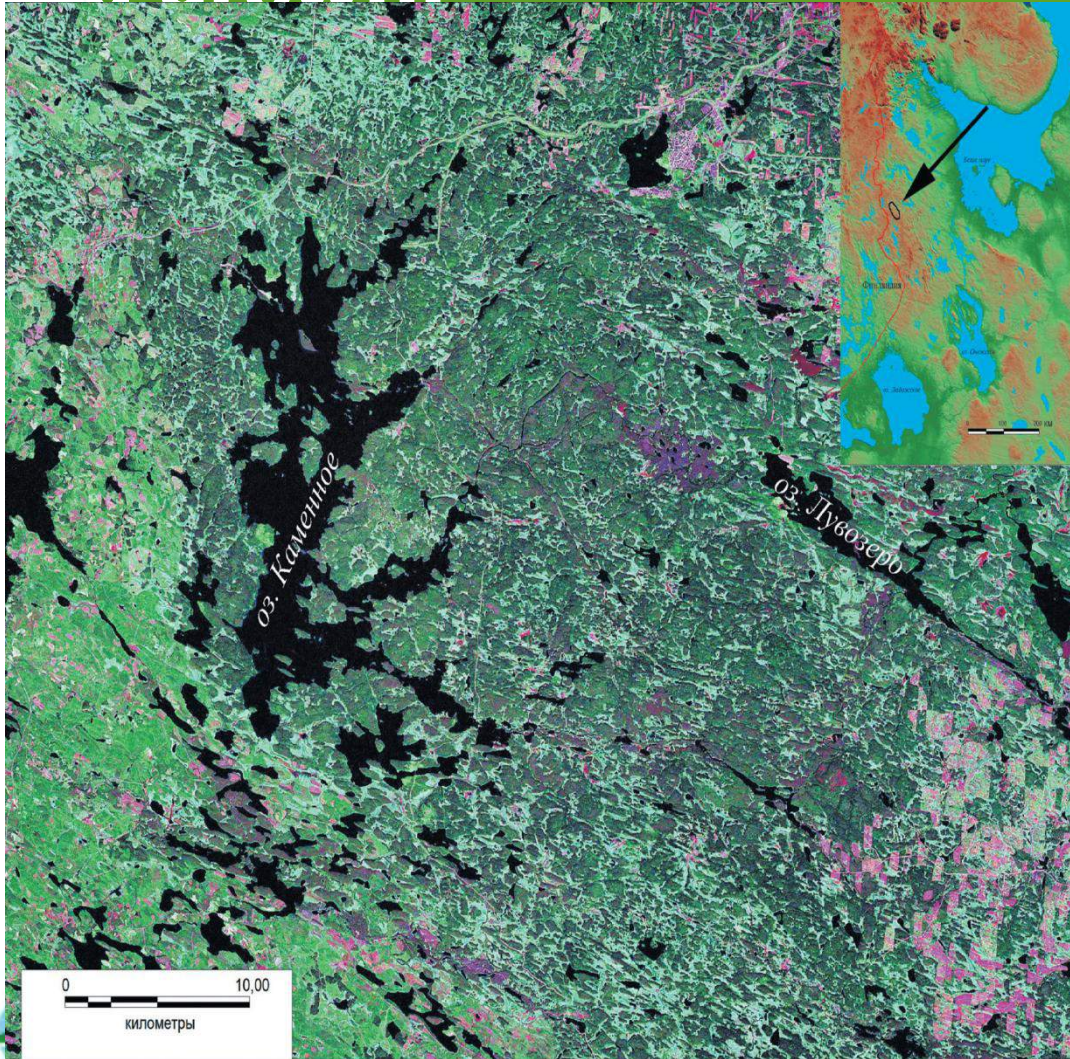


Maksimjärvi intact forest area (ca 20-30 km from the Finnish-Russian State border)



- NGO's pointed out the importance of the area and negotiated a partial moratorium
- In the GAP analysis of nature reserve network of NW Russia a proposal for establishing a nature reserve was presented with the name "Spokoinyi"

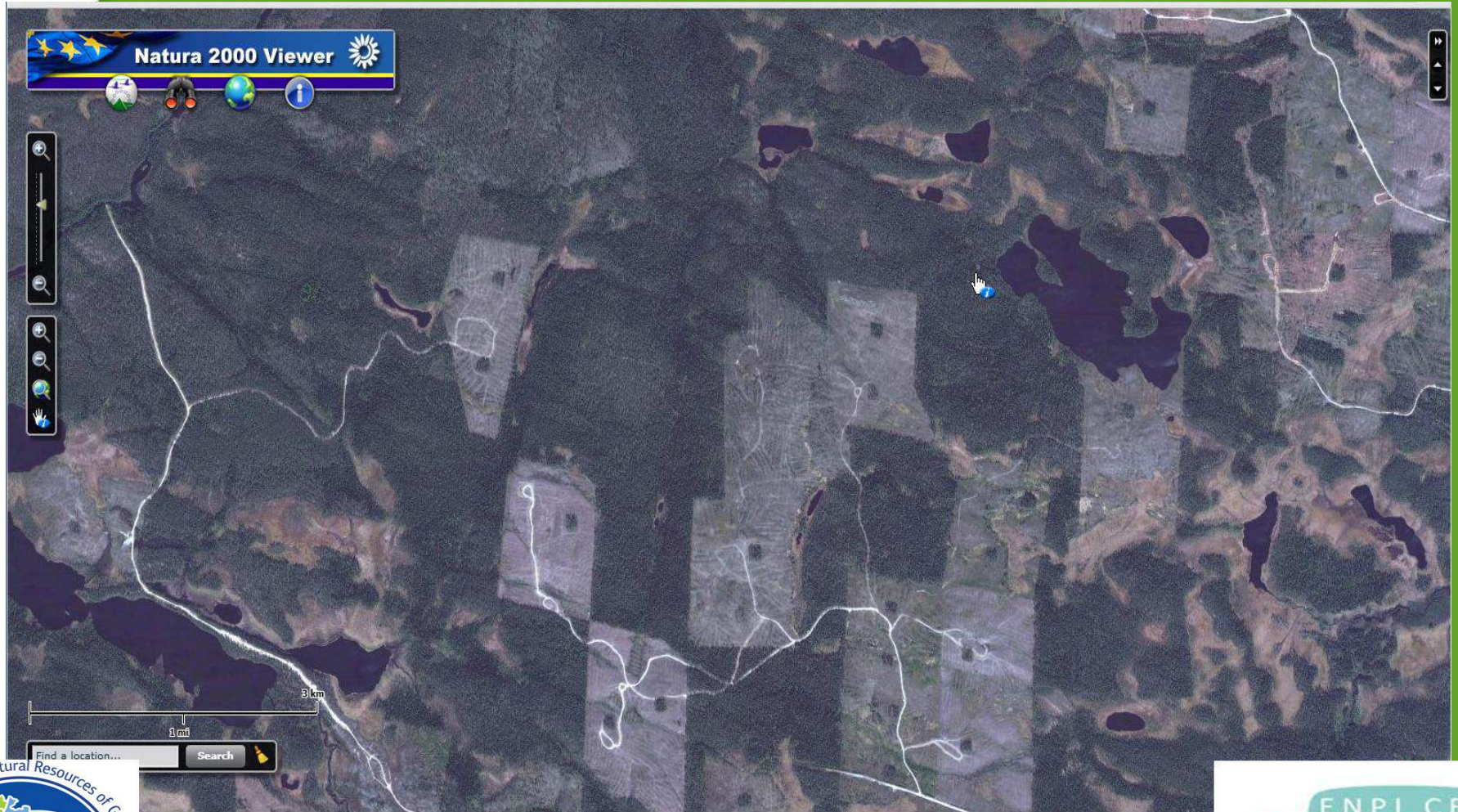
Satellite images the forests east of the Kostomukshkiy Strict Nat Reserve look old-growth



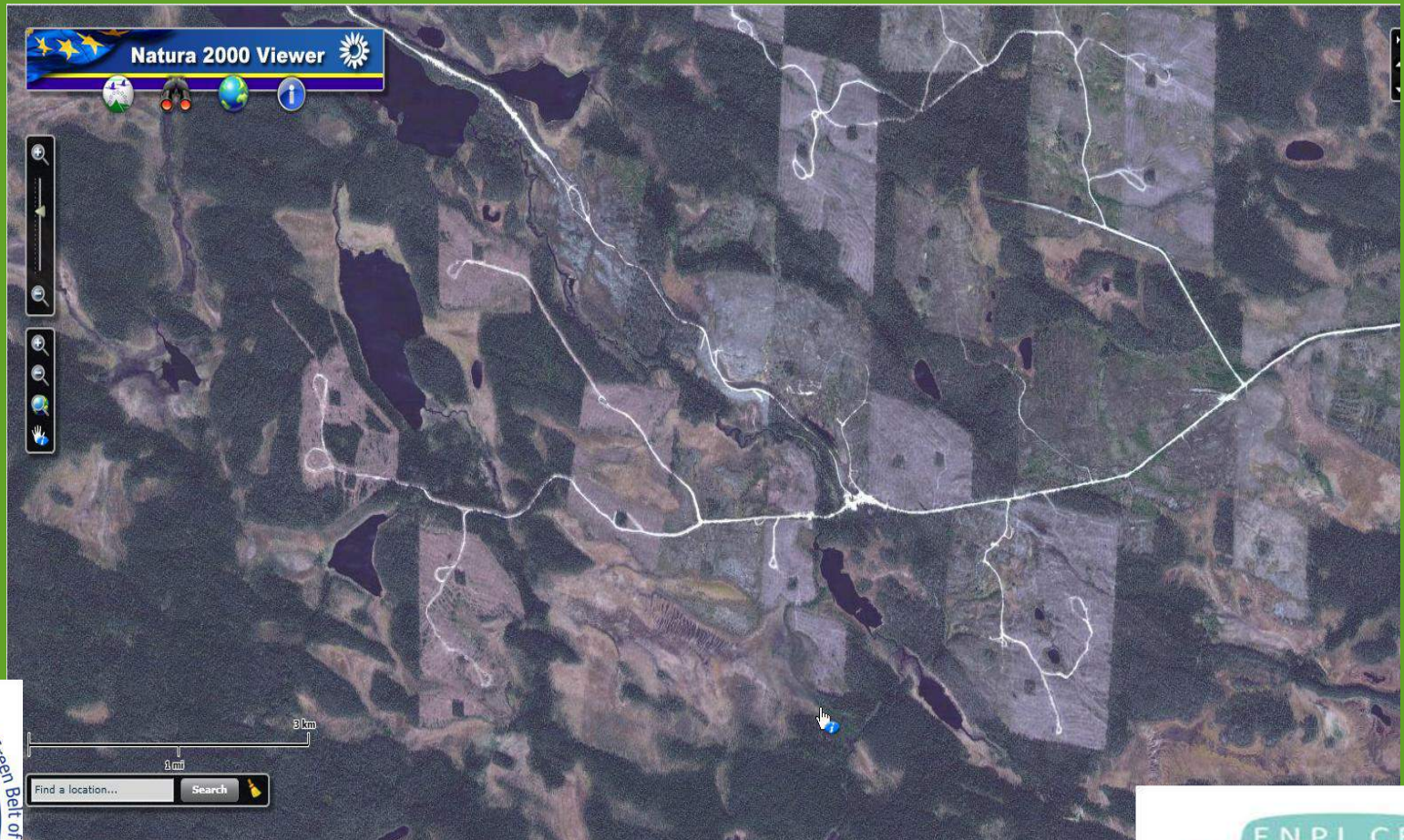
The forests are practically untouched in an area that is part of the planned zakaznik (*a kind of protected area in Russia*) **Spokoynyi** (71,600 ha). This is an area far from any major waterways, so it was spared from traditional logging activities in the past.

There is no other wilderness area of just this type anywhere in Europe, and even at the global level it is really difficult to find other examples of a similar kind.

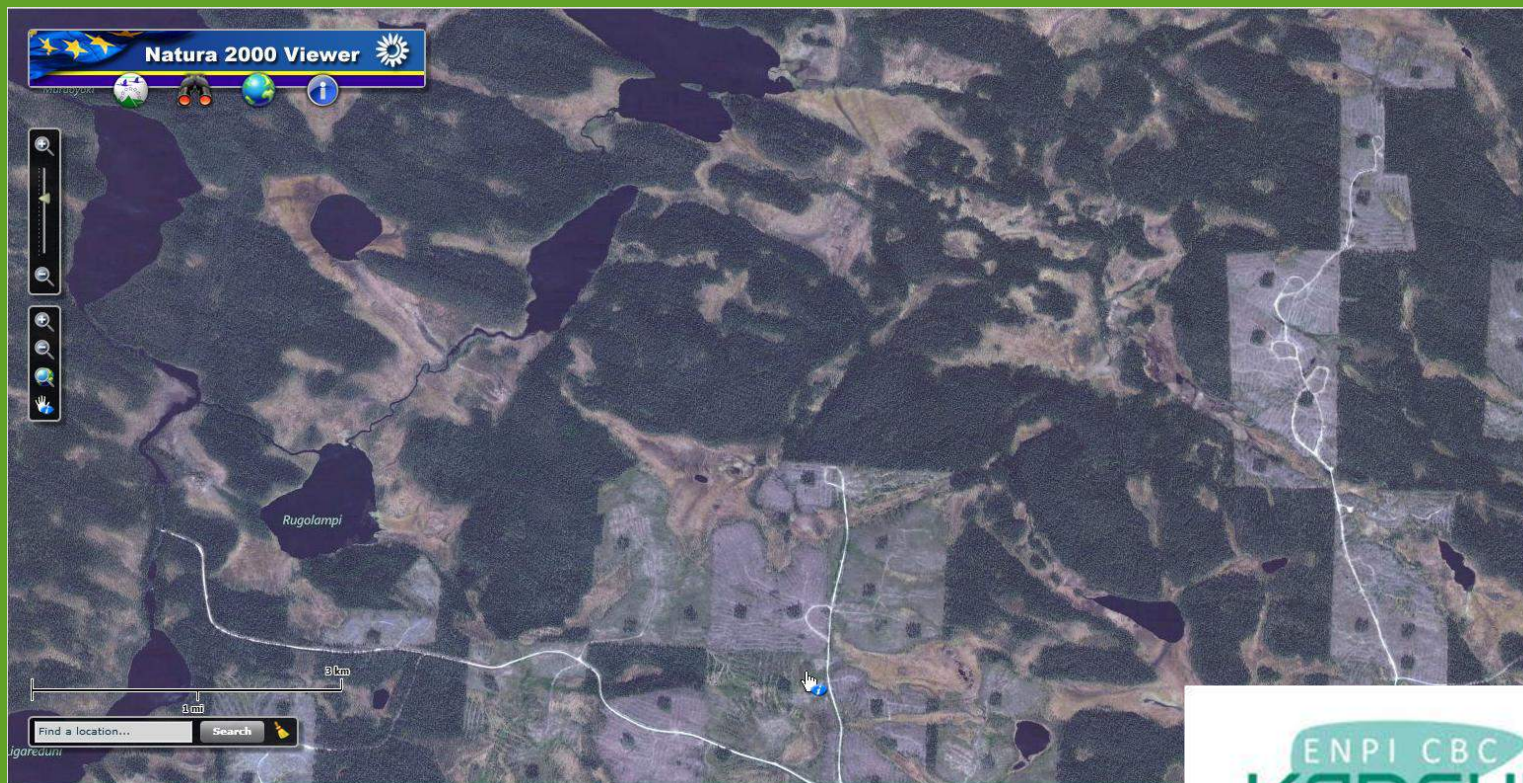
Overview of the East end of Lake Maksim about four years ago (2010)



Next site to SE



The SE part of the whole «Spokoyny» area



**•Scientists from Karelian
Research Centre
conducted forest
landscape studies in the
area**

**A. N. Gromtsev, V. V. Belkin, P. I. Danilov, V. I. Krutov, O. L. Kuznetsov,
A. V. Ruokolainen, O. O. Predtechenskaya, A. V. Kravchenko, S. V. Sazonov,
K. F. Tirronen, D. V. Panchenko, A. V. Polevoi, M. A. Fadeeva,
A. E. Humala. CHARACTERISTICS AND ECOLOGICAL ASSESSMENT OF
NATURAL COMPLEXES IN THE CENTRAL PART OF THE WEST-KARELIAN
UPLAND**

Comprehensive description and ecological assessment of the central part of the West-Karelian upland is provided. This area, together with adjacent operating and planned PAs, is the core of the Green Belt of Fennoscandia. It is situated within the most typical Fennoscandian north-taiga landscape. The largest in western Eurasia continent of pristine taiga has survived there, surrounded on all sides by forests at various stages of anthropogenic succession (after clear-cutting). The physiographic features of the territory, state of its flora and fauna are considered in detail, and changes in them induced by human impact are partially assessed. Eventually, we substantiate foundation of nature reserves in the area with regard to the developing PA system of the Green Belt of Fennoscandia and Karelia in general. Arguments are given for utilization of the area as a polygon for ecological landscape planning of multipurpose nature use.

• In the framework of Friendship Nature Reserve cooperation, SYKE sent a group of researchers to conduct studies of threatened species in 2012



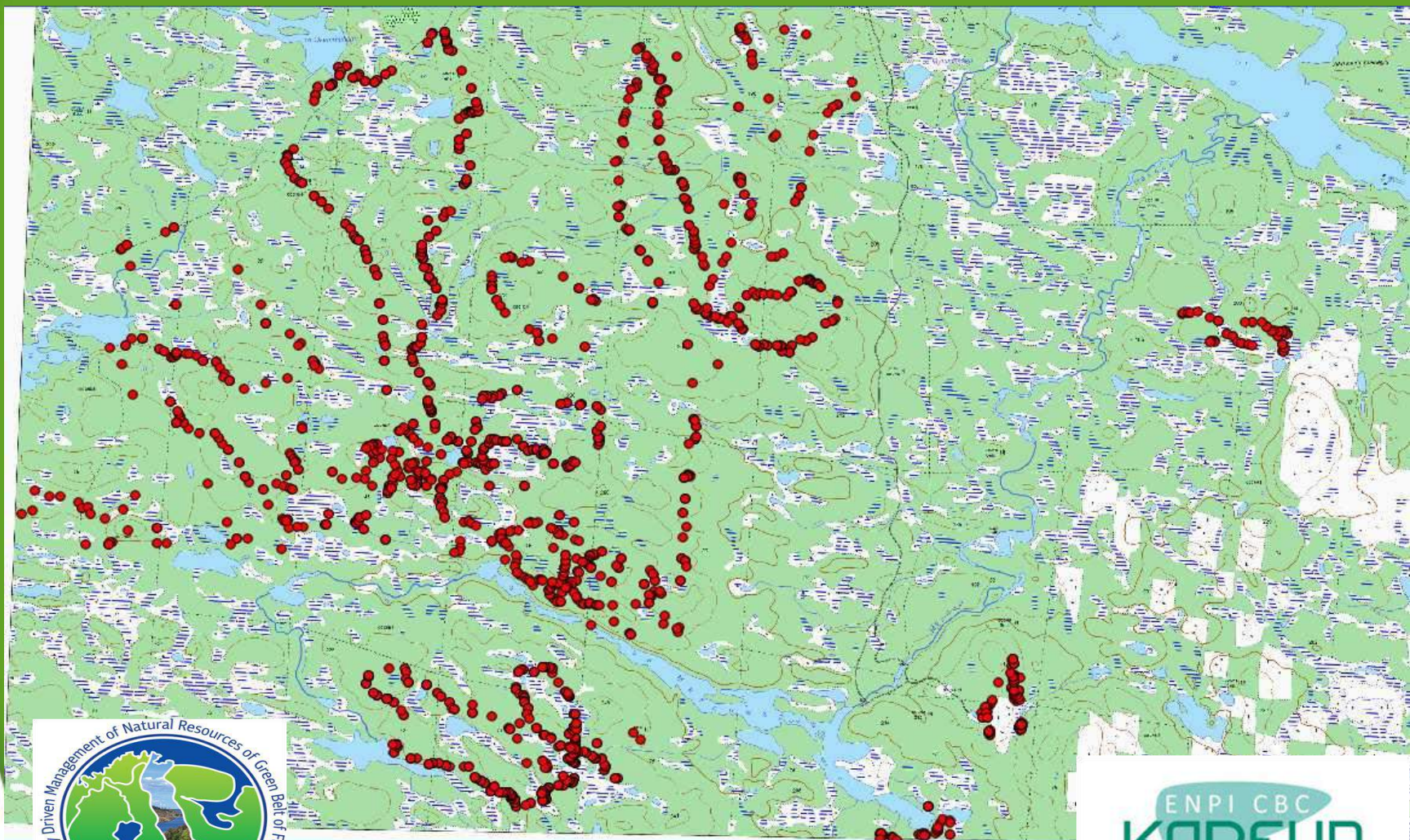
Pine-dominated forests have never been managed. They develop naturally by fire dynamics, Many old trees survived and at present stands are unevenaged. Big amount of deadwood,



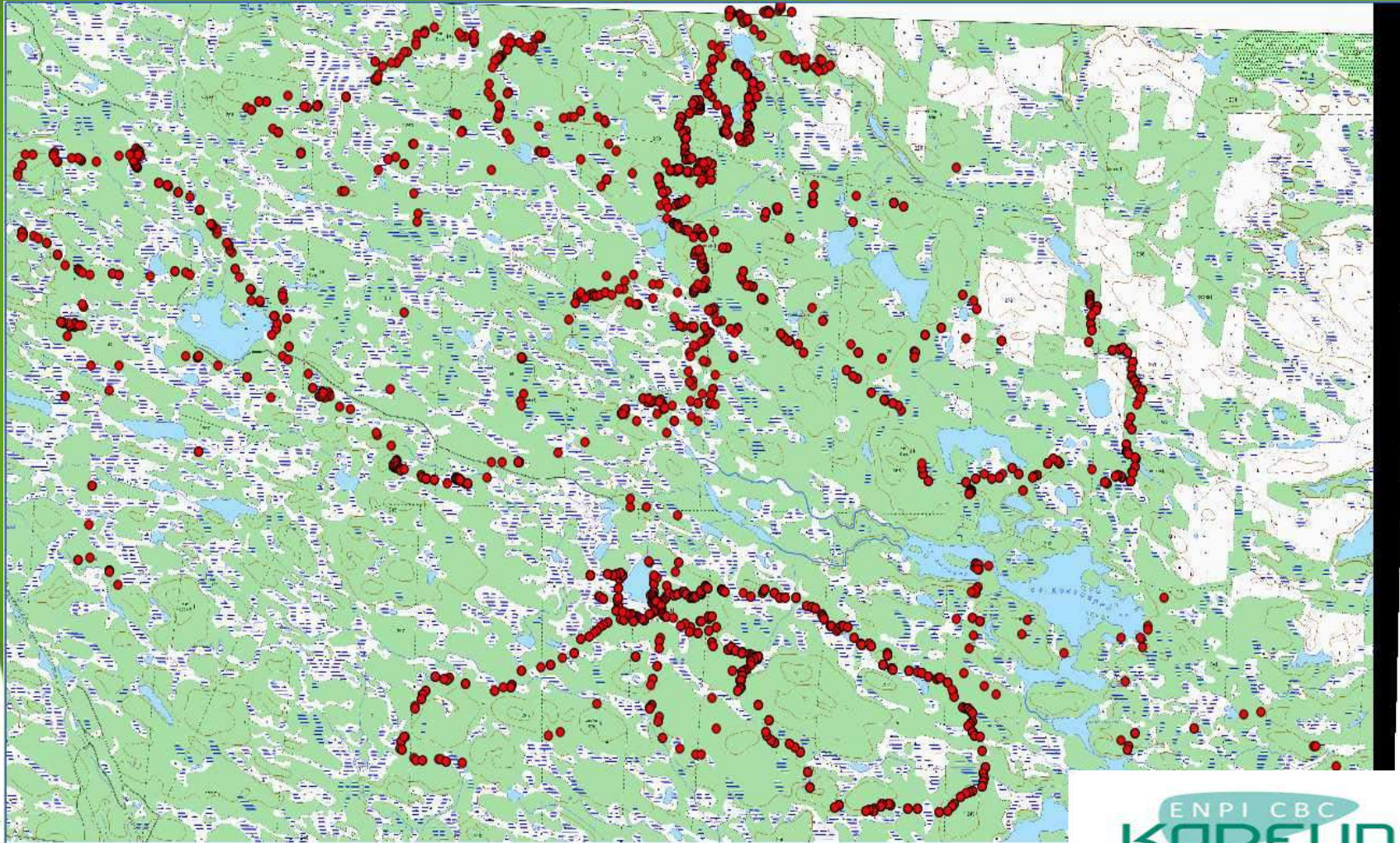
Mires have never been drained, so there are extended areas of old-growth wet spruce forests around them and by numerous streams



Northern part of the study area (2012) with findings of red-listed and OGF-indicatory species of fungi, lichens, mosses and insects



The southern part of the study area with findings



33 species which are included in the Red Data Book of the Republic of Karelia (2007), two of them also included in the Red Data Book of the Russian Federation (2008)

more than 700 localities of these species were found

67 HCVF indicator species, according to Andersson et al. (2009)

more than 2500 localities of these species were found

31 other other notable species (e.g. Polypore fungus *Skeletocutis jelicii* living on pine)

Pytho kolwensis (Sahlberg, 1833)

• (scanography by Oleg Berlov)

Environmental requirements
(after Siitonen & Saaristo 2000)

Typical taiga- and an endangered beetle species that mainly occurs in old-growth (in fact virgin) spruce-mire forests with a stand continuity of at least 170-300 yr, and a high volume of dead wood (73-11 cub m/ha)

Larvae feed on phloem in fallen spruce trunks ca 2 to 8 yr after death of a tree, often after bark beetles (*Dryocoetes* spp, *Hylurgops glabratus*, *Ips typographus*) and the cerambycids (*Tetropium*, *Monochamus*)

In natural landscapes spruce mire forests often occur as a string of habitats along streams and as ecotones between mesic mineral soil forests and open mires.

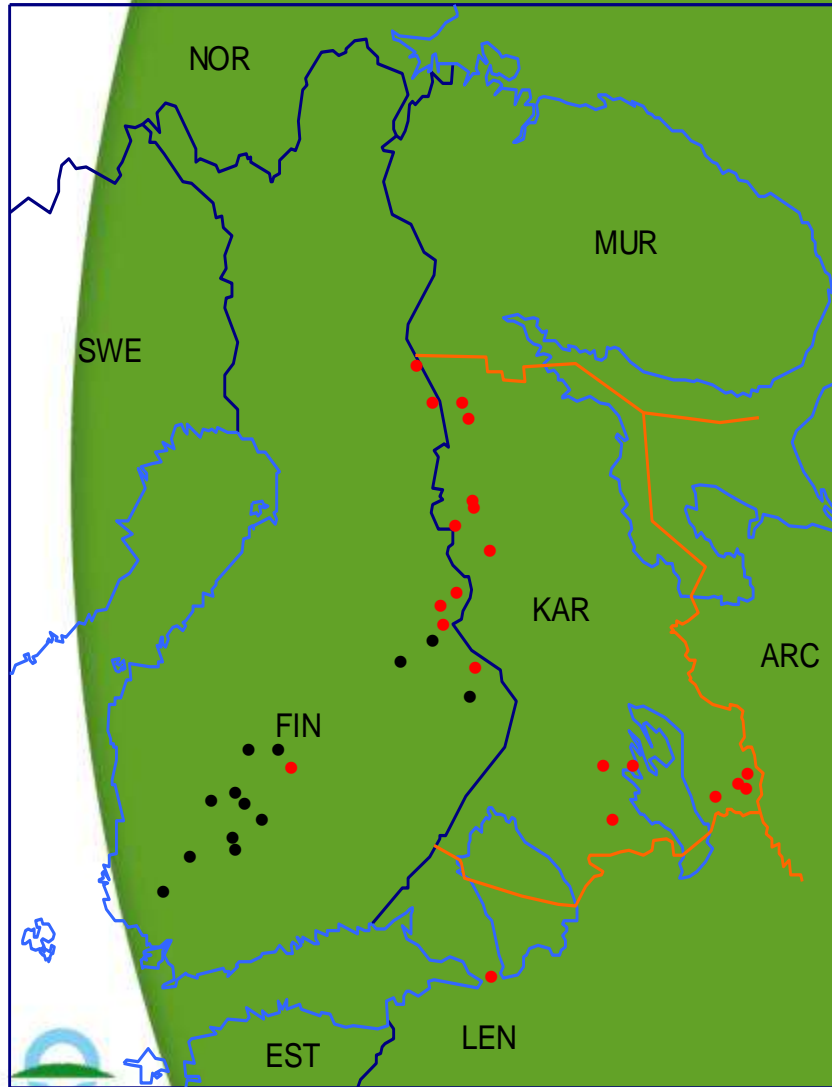
Draining → isolation →
declining of *Pytho kolwensis*
populations.



Layers	
<input checked="" type="checkbox"/> <i>Pytho kolwensis</i>	
<input checked="" type="checkbox"/> presence	green
<input checked="" type="checkbox"/> absence	red
<input checked="" type="checkbox"/> no data	yellow
<input checked="" type="checkbox"/> elevation	
<input checked="" type="checkbox"/> lakes and rivers	blue
<input checked="" type="checkbox"/> regional limits	black

Pytho kolwensis (Sahlberg, 1833)

- - records before 1960;
- - records after 1960



• *Boros schneideri* (Panzer, 1795)



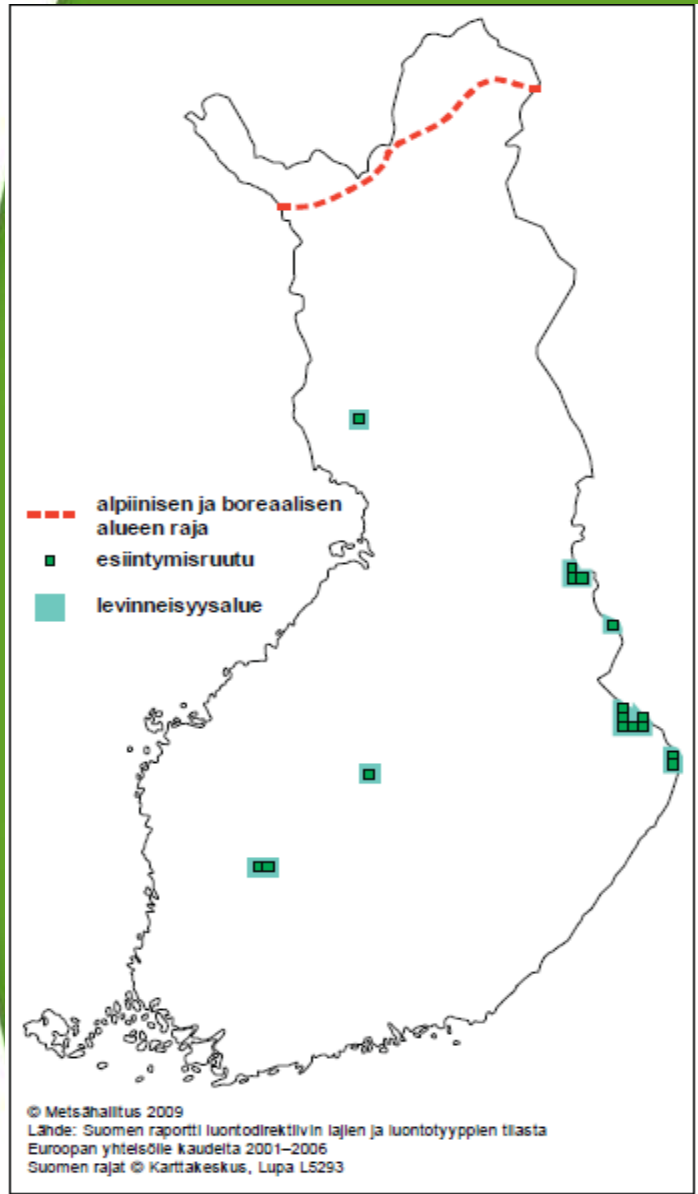
• (scanography by H. Polacek)



• scanography by H. Polacek)



Boros schneideri (Panzer, 1795)



**Distribution in Finland
(after Similä, Mannerkoski & Ilmonen 2009)**

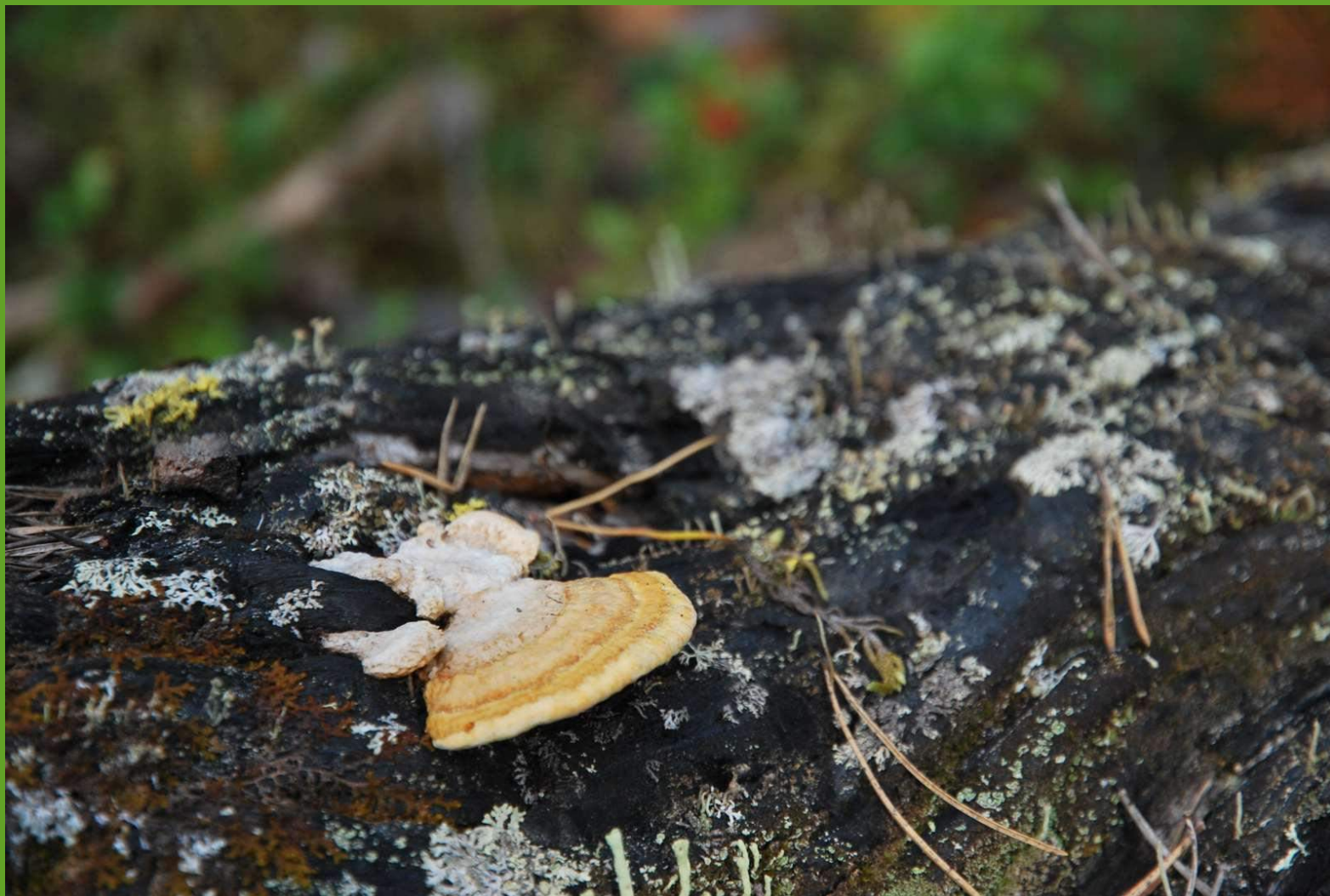
***Antrodia crassa* Антродия толстая 2(EN). One of the most exclusive old-growth pine forest species**



Skeletocutis jelicii. Also very rare pine forest specialist species



Gloeophyllum protractum Глеофиллум продолговатый 3(NT). Pine specialist



Chaenothecopsis fennica. A rare calicioid lichen with very few localities in Karelian republic



Sclerophora coniorhaea Склерофора шишковатая 3(NT)



**Lobaria pulmonaria Лобария легочная
3(NT), also included in RF Red list (2008).
More than 300 localities observed**



Diplomitoporus crustulinus, a rare OGF fungus on spruce.



Gloiodon strigosus Глиодон щетинистый 3(VU). Aspen specialist species.



Stereopsis vitellina 3(NT). An interesting rare species mostly found under old burnt dry pine trunks.

