



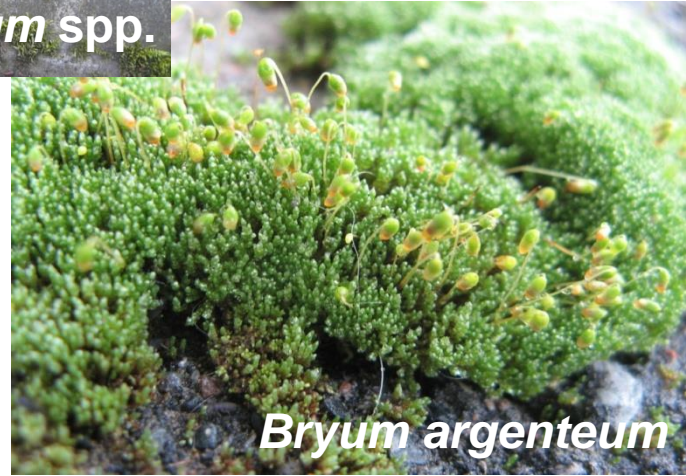
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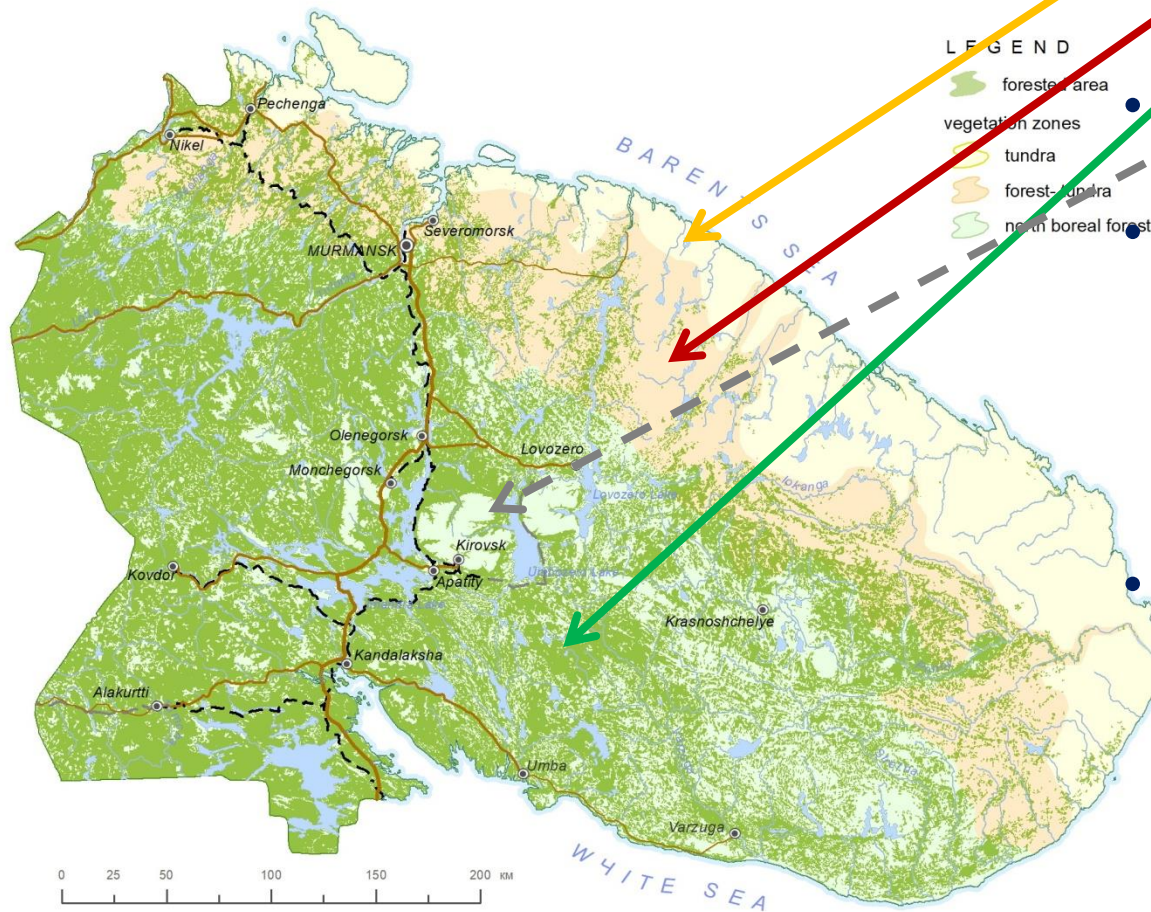
CLIMATE CHANGE BASED RESPONSE OF ARCTIC ECOSYSTEM: MURMANSK REGION EXAMPLES

February 19 2021

Observed changes in biota of the Murmansk Region occur as a result of the combined action of natural and anthropogenic factors.



Features of the Murmansk Region natural conditions



- 3 vegetation zones:

- tundra,
- forest-tundra.
- taiga;

- Mountains 500-1208 m high;

Climate is harsh and unstable due to the proximity of the Gulf Stream and Arctic cold fronts. Precipitation is abundant throughout the year;

- These natural conditions are reflected in the high biodiversity.

Main ecosystem responses to climate change



«Greening of the Arctic»

Melting permafrost

The emergence of new species, including those threatened by natural communities

The emergence of atypical plant communities

Reduction of reindeer pastures

Changes in the composition and structure of the animal population

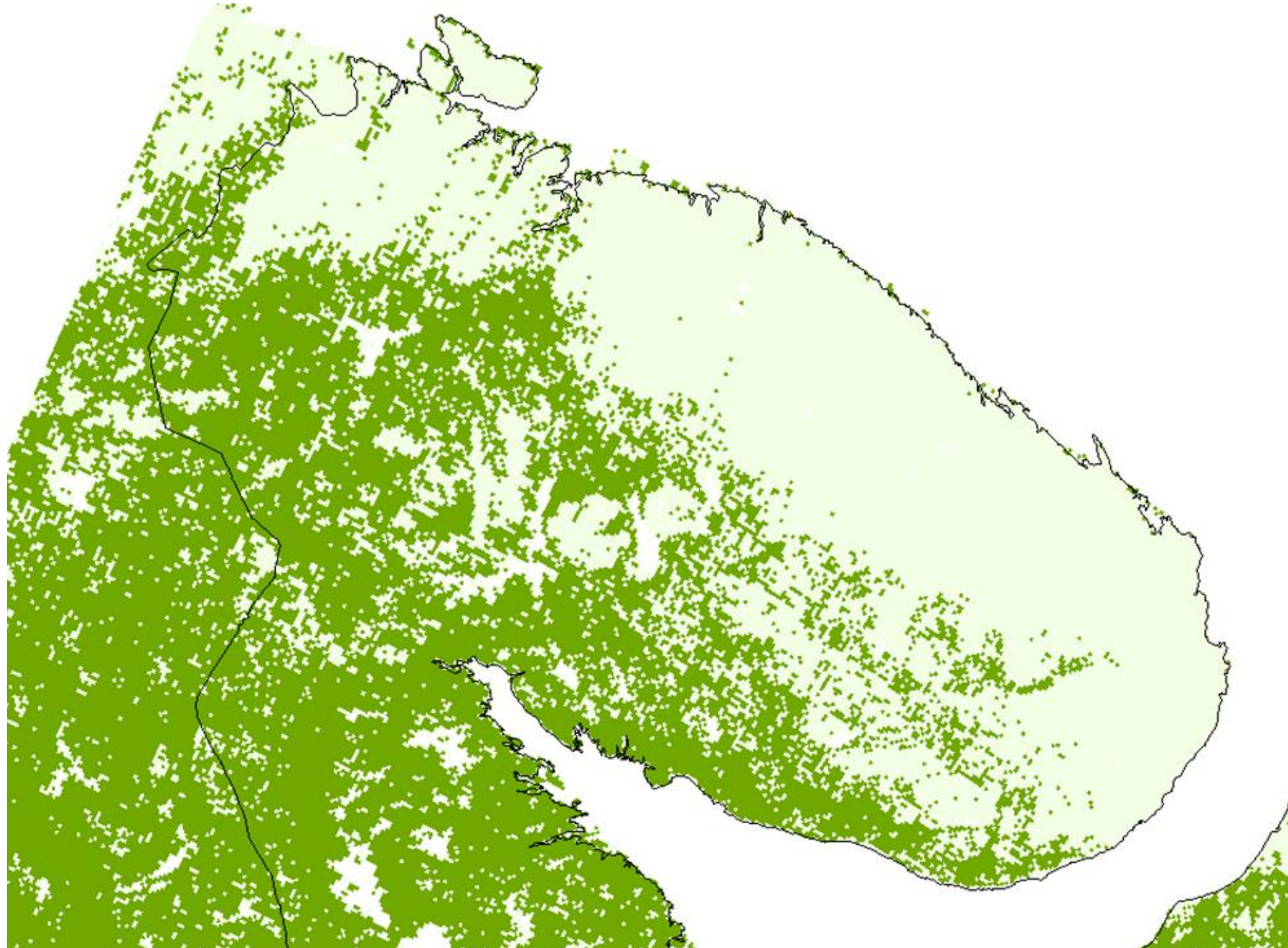
Blooming in the North

Changes in the structure of fish communities

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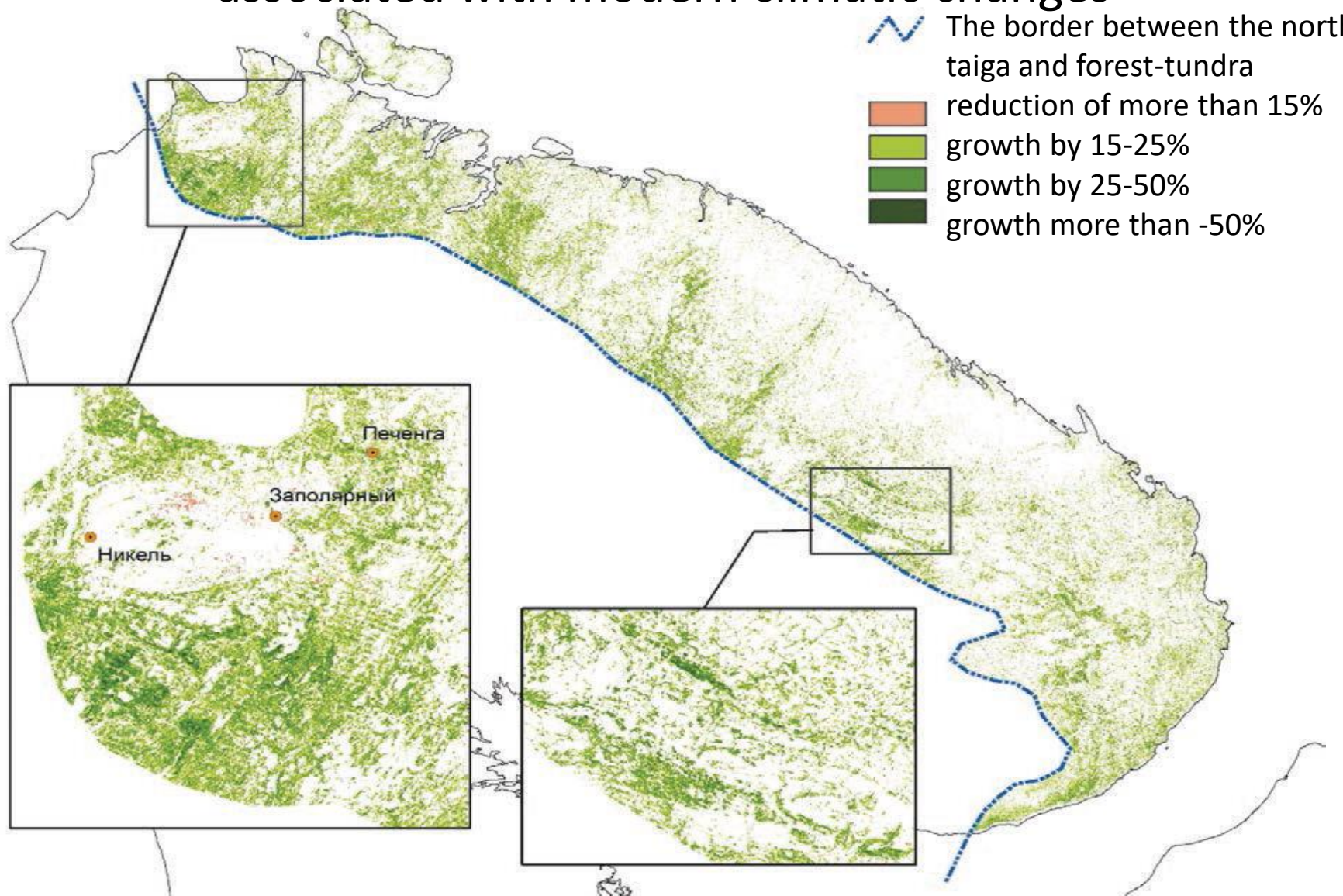


The productive forest area (annual growth rate $<1\text{m}^3\text{ha}^{-1}$) according to MODIS data

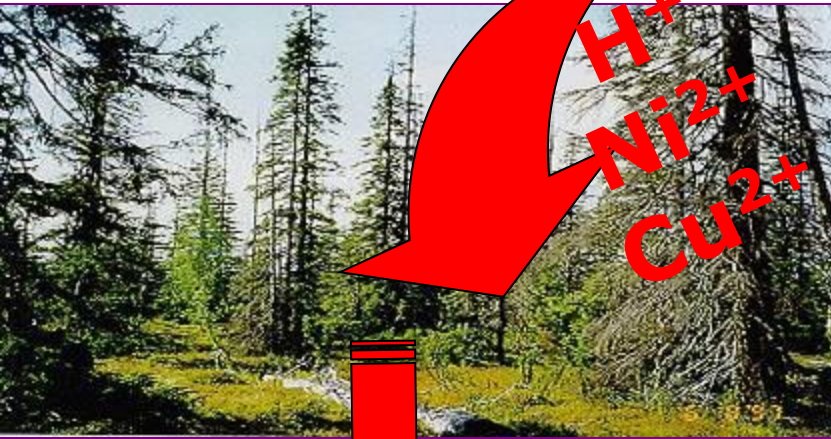




Changes in the vegetation cover of the Murmansk Region associated with modern climatic changes



An increase in the density of birch crooked forests from 2000 to 2010 (after: Tishkov et al., 2019: 83)

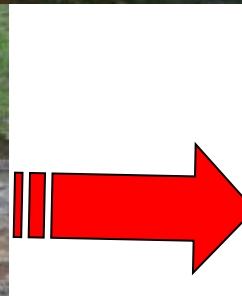


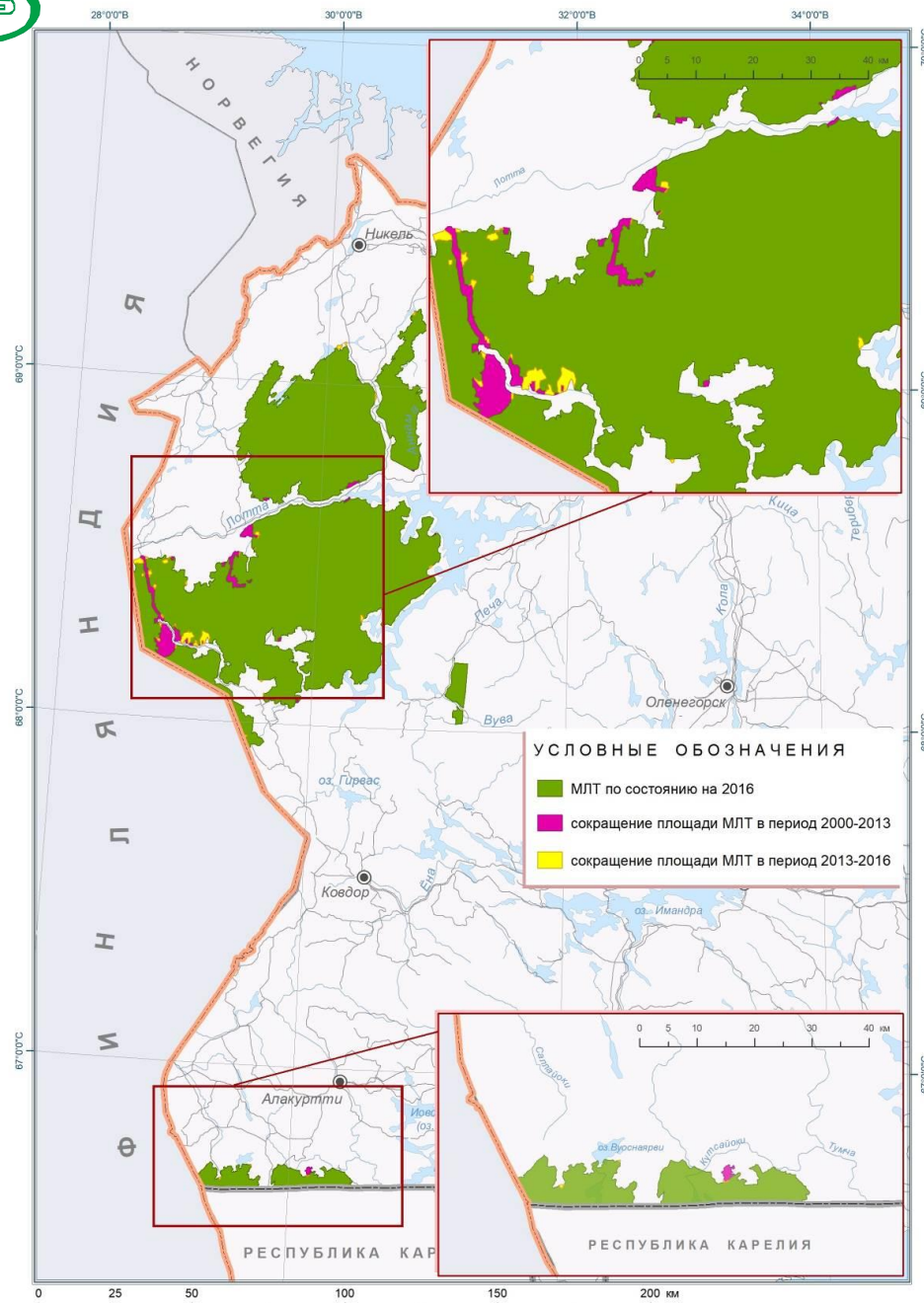
H^+
 Ni^{2+}
 Cu^{2+}



Monchegorsk Town

Air pollution





Changes in the vegetation cover of the region associated with human activities

Reduction in the area of intact forest areas (IFL) in the western part of the Murmansk Region

Mountain fires near Kirovsk Town



fire on Yukspor Mt (2018)

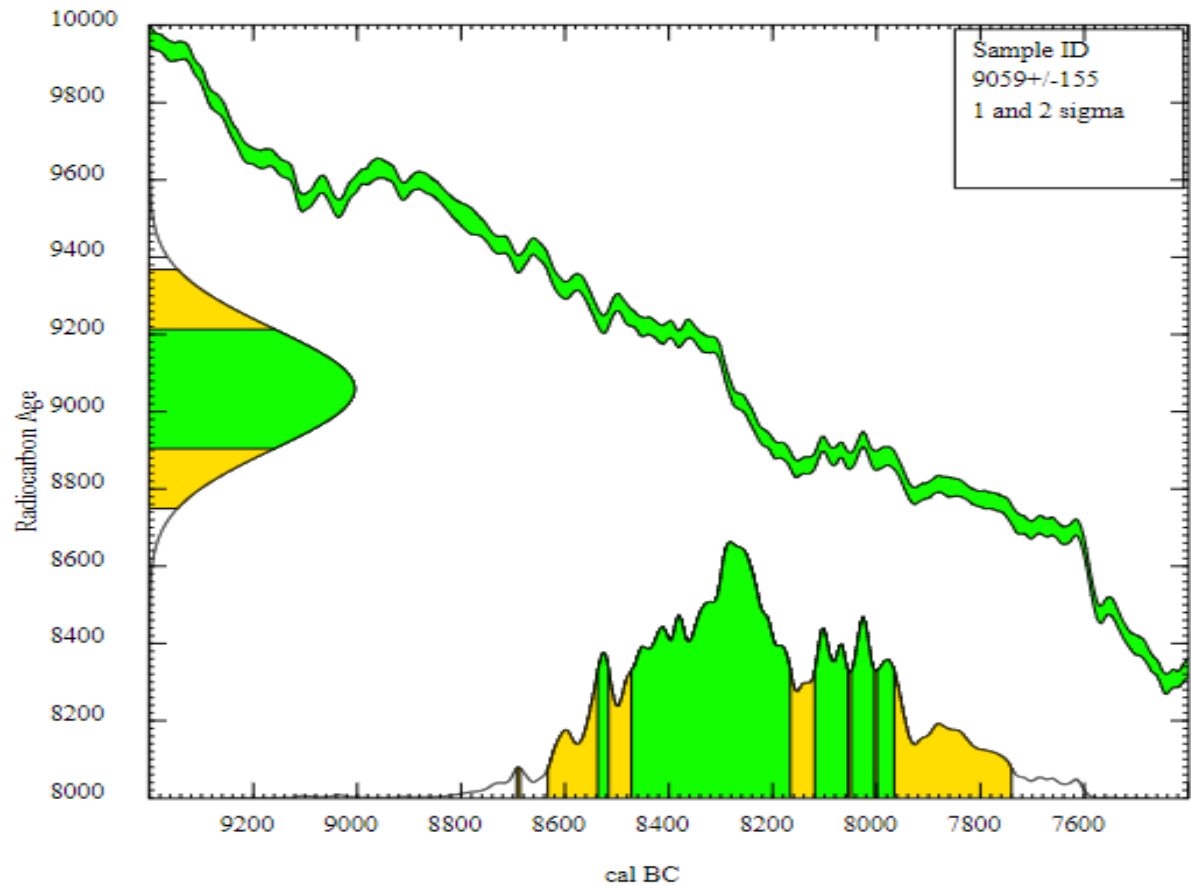


**fire in lichen tundra in
Aykuayvenchorr Mt (2013)**


Melting permafrost



A core sample was taken in a coarse bog near the Kanevka village



The bog bottom in a swamp near the border of a hilly complex, 500 cm, deposited about 10,000 years ago

 "Young" vegetation communities of the Murmansk Region - ruderal and park, which associated with towns and villages



Anthropogenic meadows



Vegetation and soil in the towns park, Kirovsk



Lupinus polyphyllus on the side of the road

New adventives species for Murmansk Region flora



Helianthus annuus



Onobrychis viciifolia



Polar-Alpine Botanical Garden-Institute is an important introduction center and factor of enrichment of the flora diversity of the Murmansk Region



Soldanella alpina Исследовательский уровень

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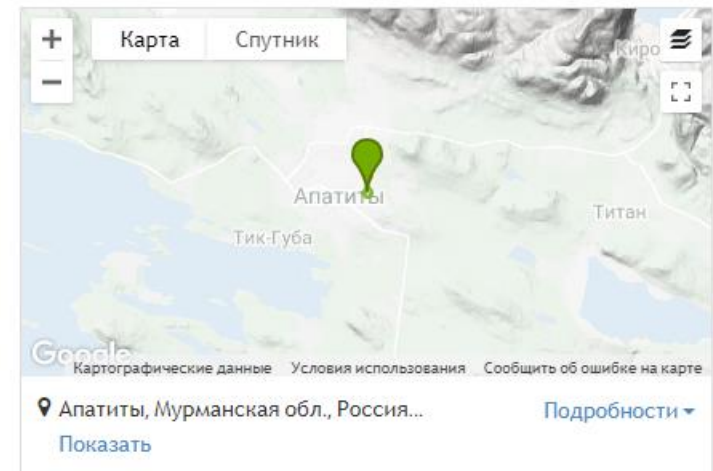


borovicheveugene
👤 446 наблюдений



Дата, время наблюдения:
6 июня 2020 - 12:40 +03:00

Загружено:
7 июня 2020 - 12:38 MSK



☆ Будьте первым, кто добавил это наблюдение в фавориты!

Таксон сообщества

[Что это?](#)

Soldanella alpina

Общее число идентификаций: 2 из 2



👍 Улучшение 5мес

[Сравнить](#)

Seven invasive species are considered as dangerous for the regional biota: *Aconogonon weyrichii*, *Elodea canadensis*, *Heracleum sosnowskyi*, *H. mantegazzianum*, *Impatiens glandulifera*, *Lupinus polyphyllus*, *Rosa rugosa*



9 fungi species are known in the region only from the territory of towns



Verpa bohemica is known only from Monchegorsk and Kirovsk



Hericium cirrhatum is known only from single localities from Apatity





Climate change in the region has caused an increase in some forest diseases in the form of epiphytota



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THANK YOU FOR YOUR
ATTENTION!