Approbation of the methodology for GHG emission accounting

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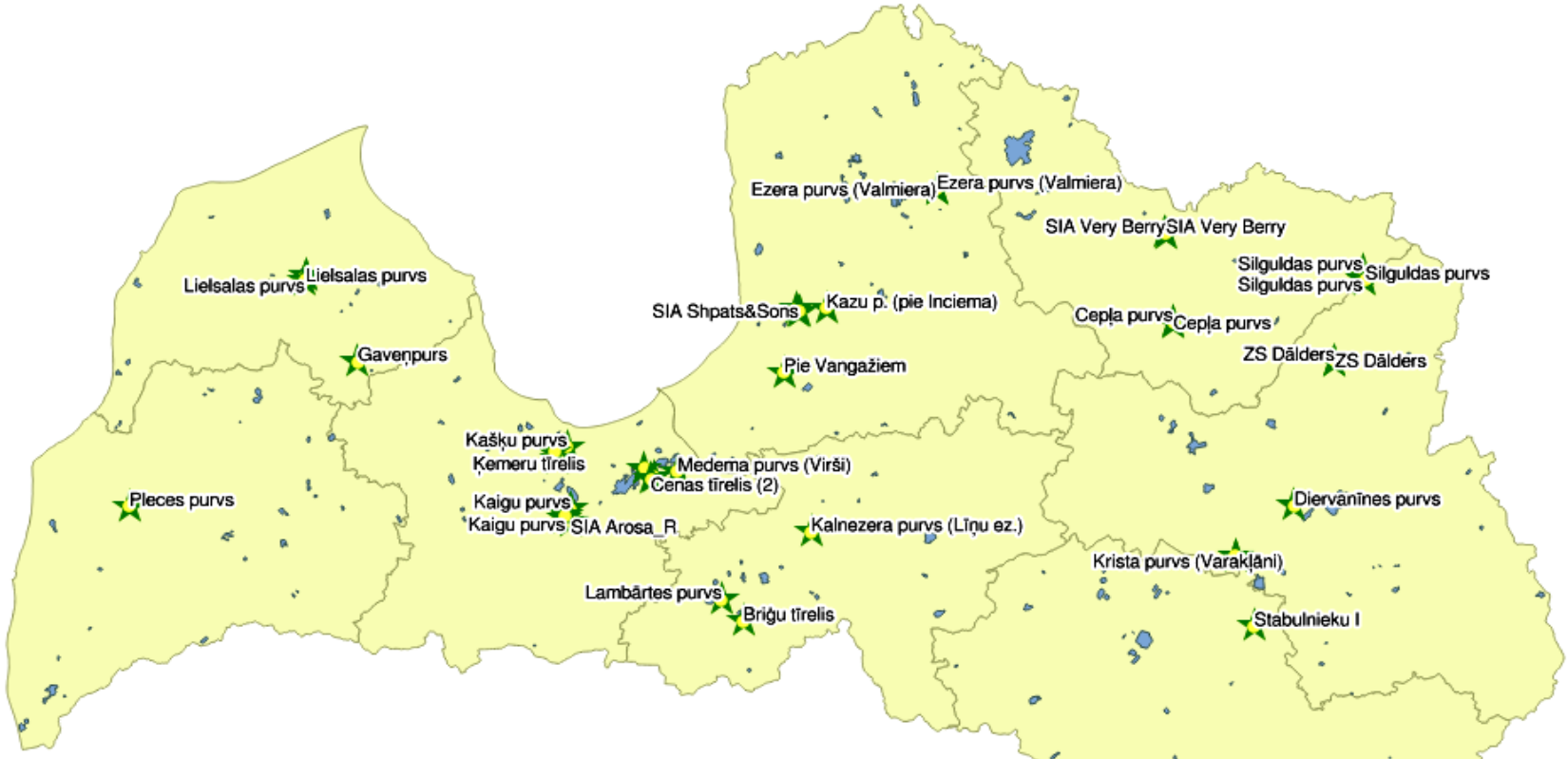
Introduction

- The main objective of the activity is to elaborate gas flux measurement-based emission factors for GHG (CO_2, N_2O and CH_4) emissions accounting in differently managed peatlands in accordance with the *Supplement to the 2006 Guidelines for National Greenhouse Gas Inventories: Wetlands (Wetlands Supplement)*

Tasks of this action are:

- to obtain field data (GHG flux) of different peatland land-use subcategories and characterize how does particular management actions impact GHG emissions in comparison with natural wetlands;
- to elaborate on the country-specific emission factors for CO_2, CH_4 and N_2O and account GHG emissions in managed wetlands in accordance with the *Wetlands Supplement*

- Field data are obtained using the methodology elaborated and approved by University of Tartu and University of Tallinn
- Sample plots are selected in areas, which are under the specified management sub-category for at least 20 years (assuming that it is sufficient period to stabilize GHG emissions)



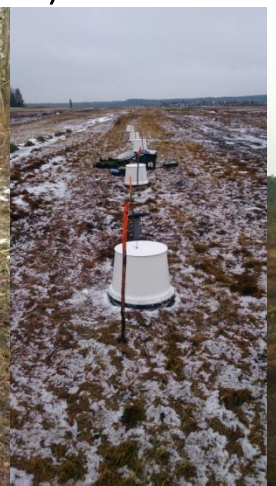
Covered land use sub-categories

1. Actively milled peat fields
2. Abandoned cutaway peatland areas where no ground vegetation cover has formed after the cessation of extraction
3. Abandoned cutaway peatland areas which have been re-colonized by vascular plants and shrubs.
4. Perennial grasslands on peatlands drained for agriculture.
5. Arable lands on peatlands drained for agriculture (crop cultivation).
6. Arable lands on peatlands drained for agriculture and vegetable cultivation.
7. Pine stands (> 20 years old) on cutaway peatlands
8. Birch stands (>20 years old) on cutaway peatlands
9. Raised bog that has been minimally influenced by any management activities
10. Transitional bogs that have been minimally influenced by management activities
11. High-bush blueberry plantations on cutaway peatlands
12. Cranberry (large, American) plantations on cutaway peatlands
13. Demo sites, where different reclamation scenarios will take place

Gas sampling

- The closed-chamber method (Hutchinson & Livingston, 1993) is used for the measurement of ecosystem respiration (CO_2), CH_4 and N_2O fluxes or emissions
- Gas samplers are installed in five replicates at the selected sites
- Gas samples are drawn from the chamber headspace using tube and a syringe into previously evacuated (0.3 mbar) 100 ml bottles
- Four samples from each chamber are collected within 1 h at 20 min intervals (at time points 0 (immediately after establishment of the chamber on ring), 20, 40 and 60 min)






Gas sampling

During each gas sampling session in each microsite:

- the depth of the groundwater table (cm) is measured in observation wells (Ø 50mm, 1.5m long PVC pipes perforated and sealed in a lower 0.5m part)
- air and soil temperature is measured at 3 depths (5, 10, 20 and 30 cm)
- ground water properties are determined using water analyzer
- weather observations are made

Results…..not yet

- Measuring started December 2016
- Will carry out the measurements for 2 consecutive years
- Insignificant emissions (DEC16 to MAR03), mainly snow and ice during the winter months



Thank you for your attention!



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