Elaboration of country specific emission factors from organic soils in Latvia according to LIFE REstore project results

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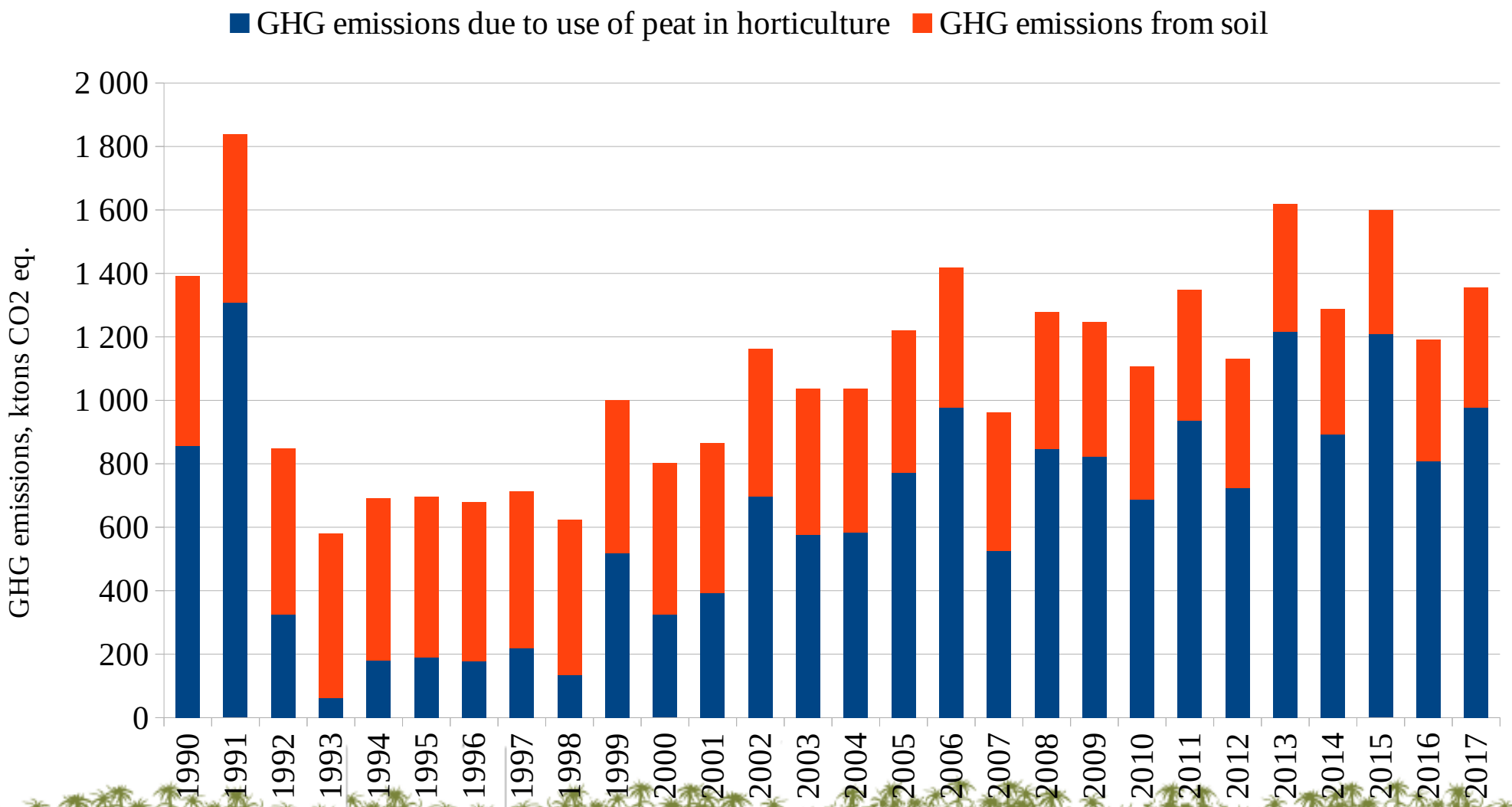
The GHG inventory improvement targets of the LIFE REstore project

- **Elaboration of CO_2 , CH_4 and N_2O** for peat extraction sites in raised and transitional bogs for different land use practices.
- Elaboration of activity data for calculation of GHG emissions from managed wetlands.
- Evaluation of potential impact of management approach and land use changes on GHG emissions in former peat extraction sites.

- The applied methodology is fully compliant with the methodologies used in similar studies in Estonia.

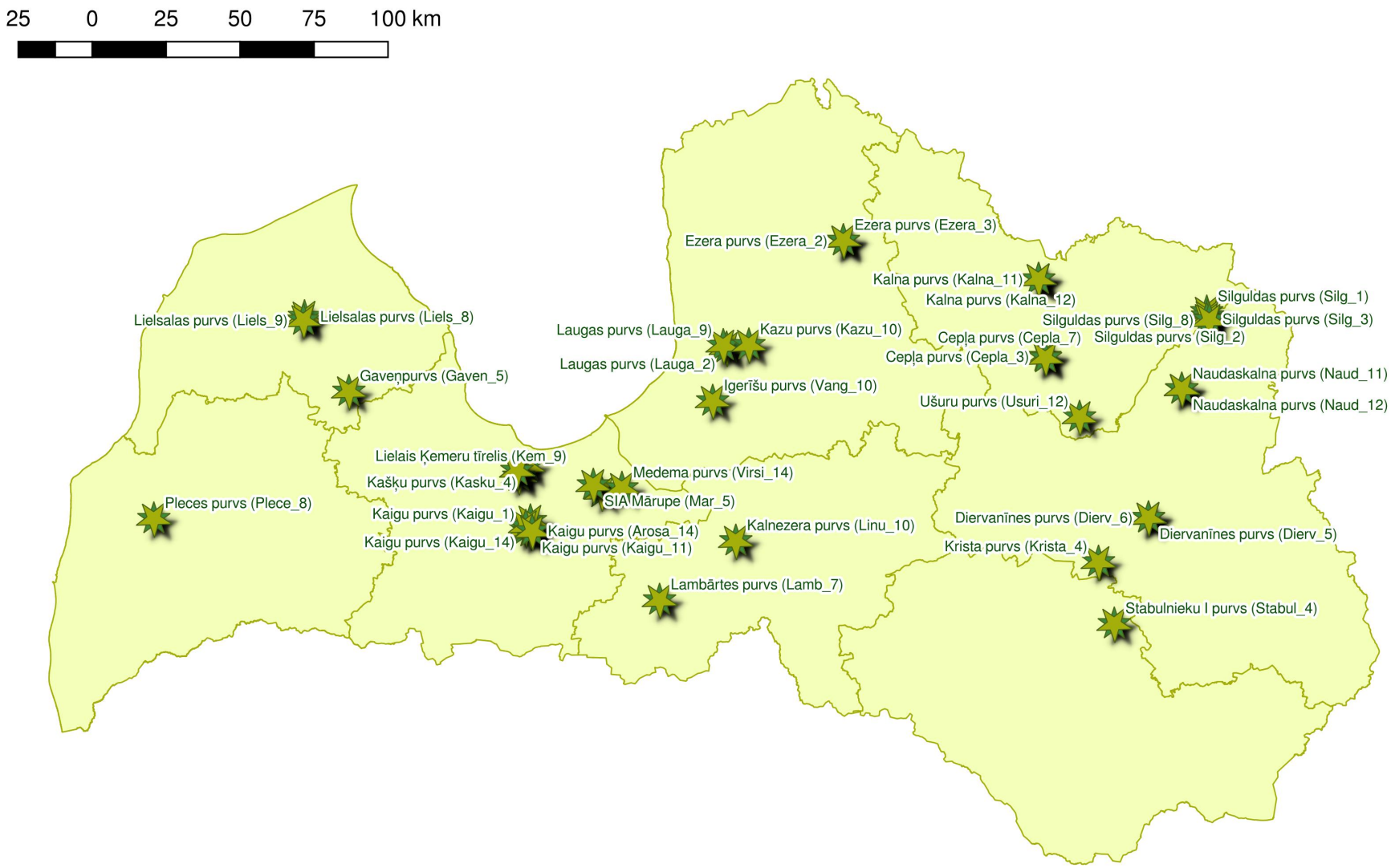
GHG emission from managed wetlands in the National GHG inventory of Latvia



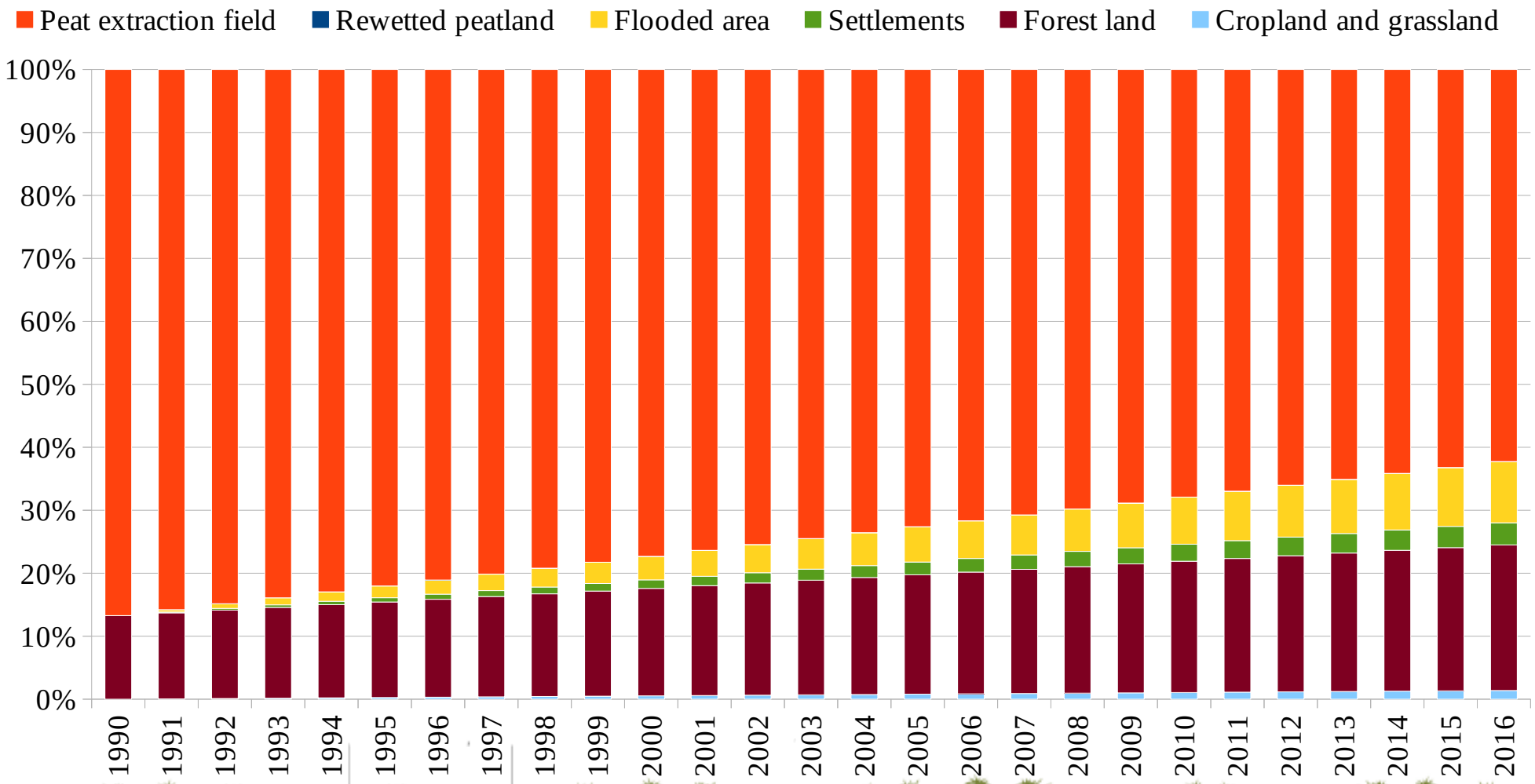
Land use types in details, each represented by 3-4 plots

- **Peat extraction site**.
- Partially extracted **peatland, poorly developed vegetation**.
- Partially extracted **peatland, covered by bushes and herbaceous plants**.
- **Perennial grassland** (pasture).
- **Cropland (cereals and sown grasses)**.
- Cropland (legumes).
- **Plantations of blackberries**.
- **Plantations of cranberries**.
- At least 20 years old **pine or spruce stands**.
- At least 20 years old **birch stands**.
- Natural **raised bog**.
- Natural **transitional bog**.

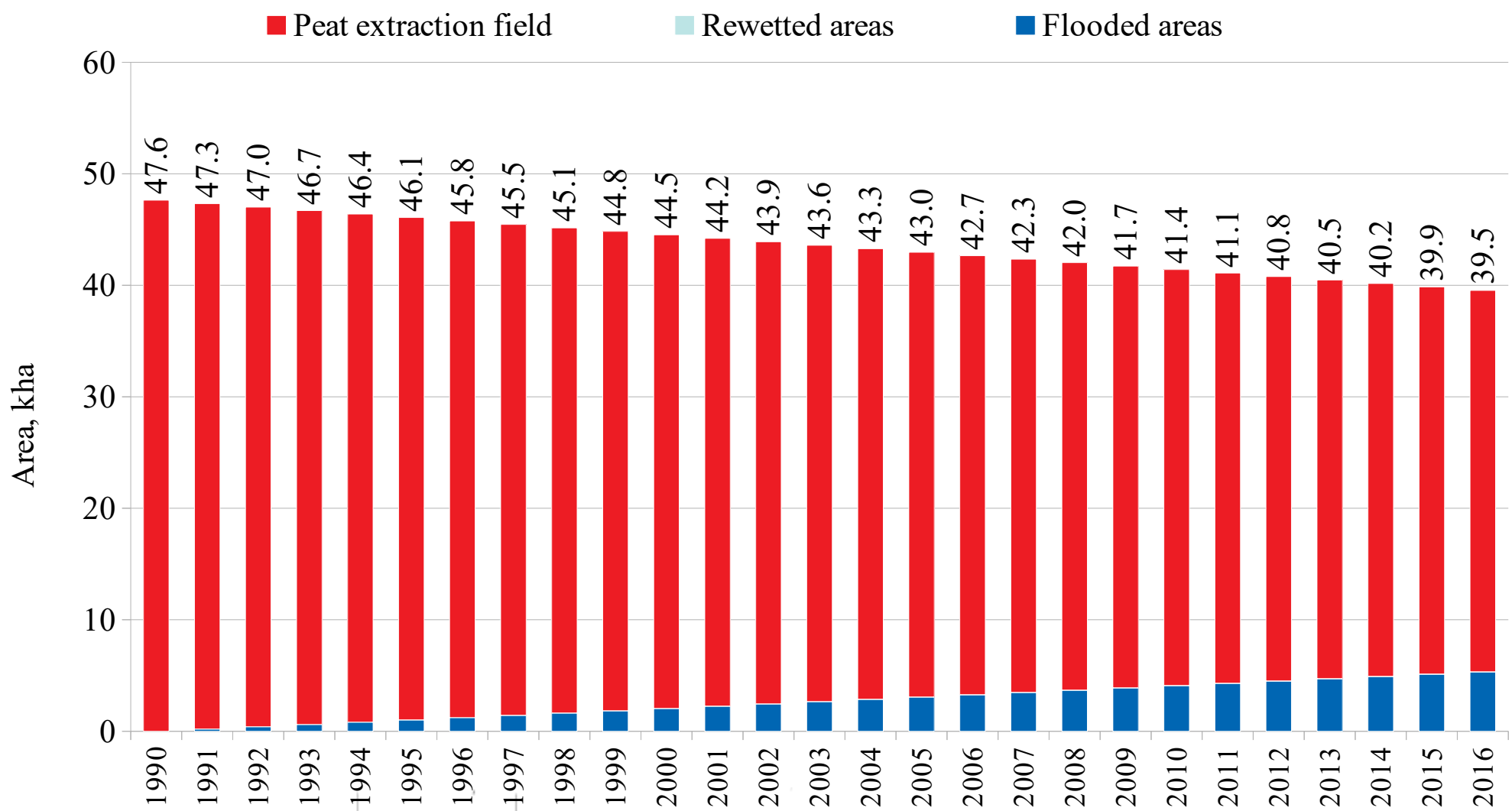
Location of sampling sites



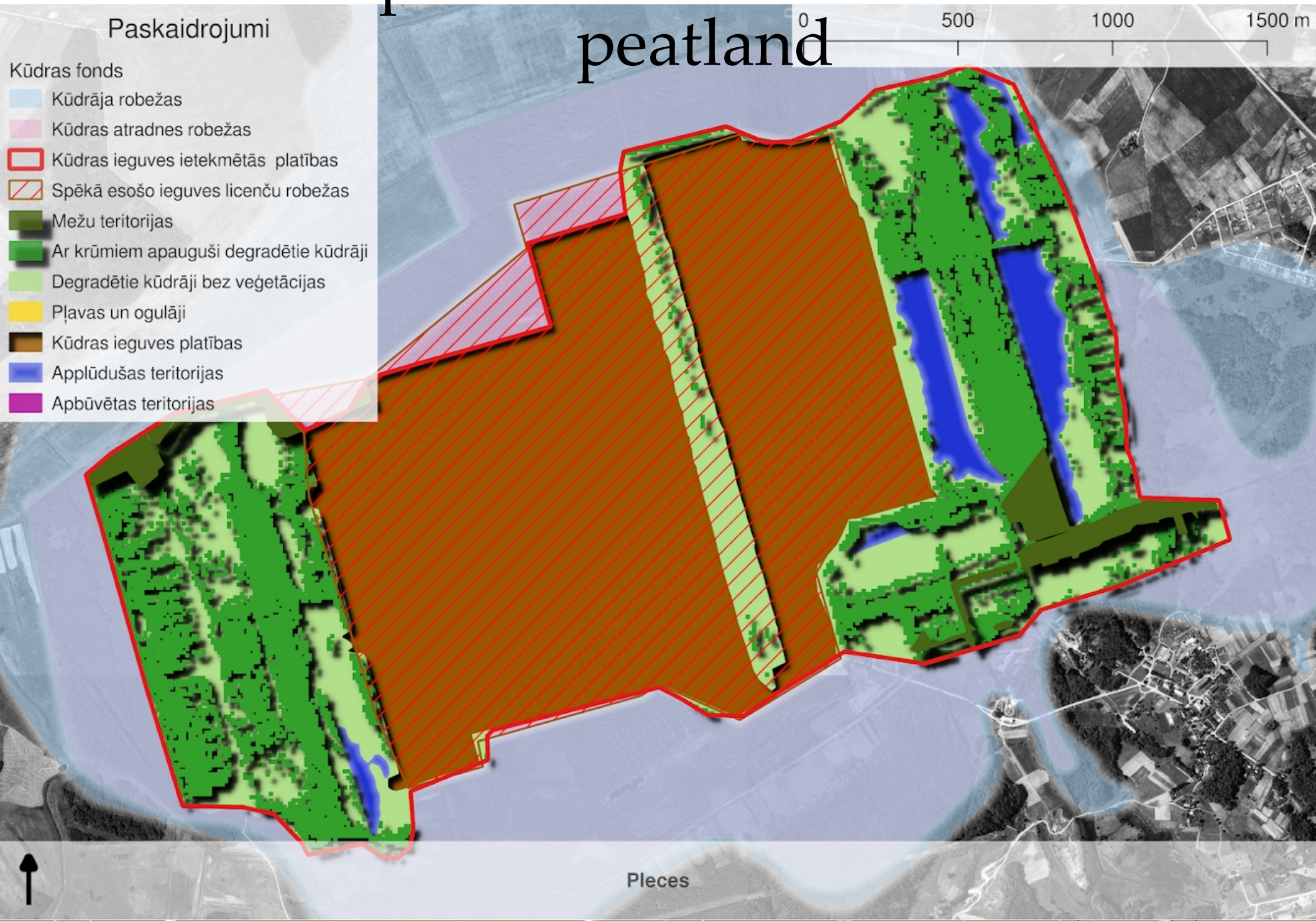
Contribution of LIFE REstore to improvement of activity data – managed of organic soils



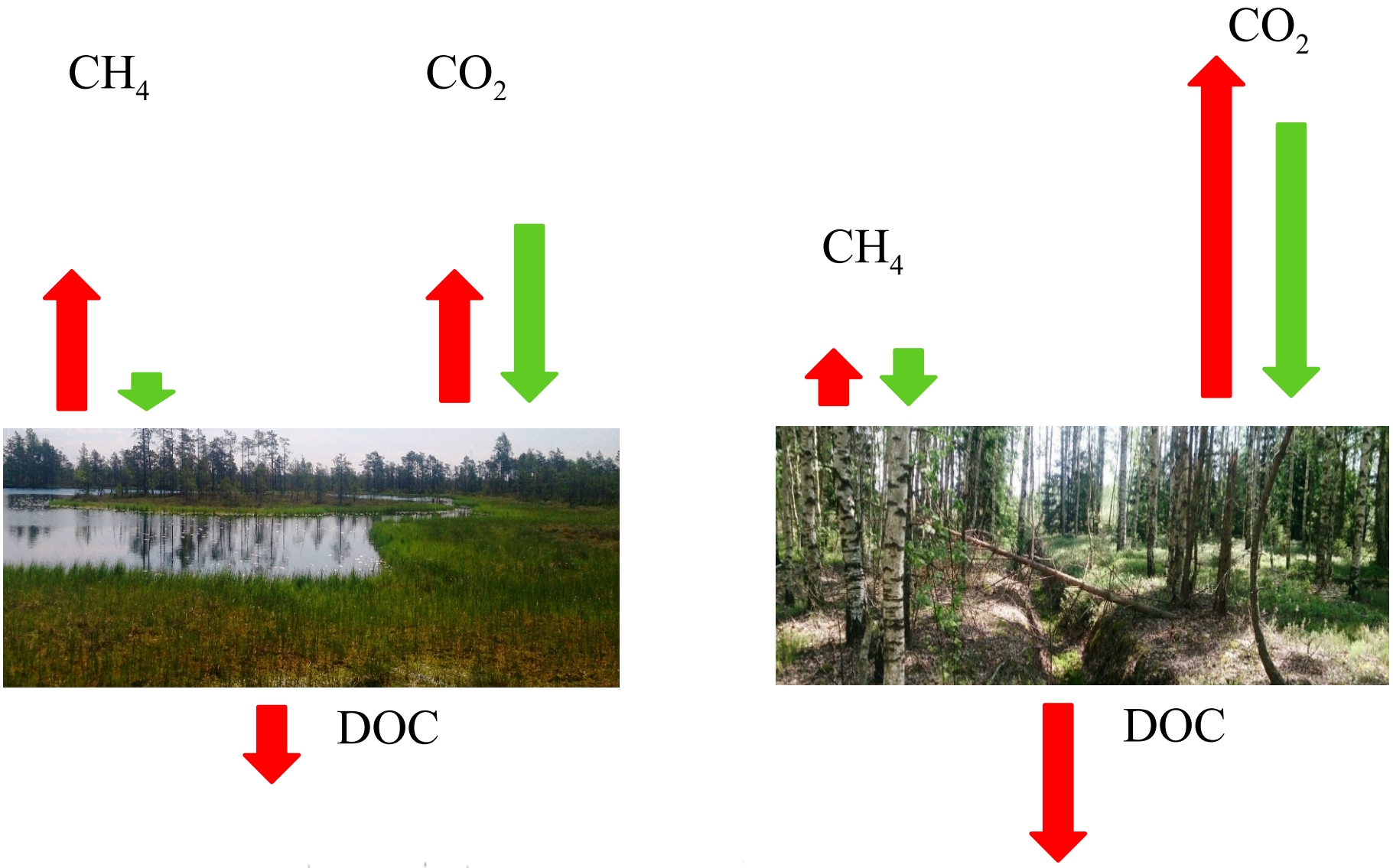
Area reported under managed wetlands



Example of land uses in extracted peatland

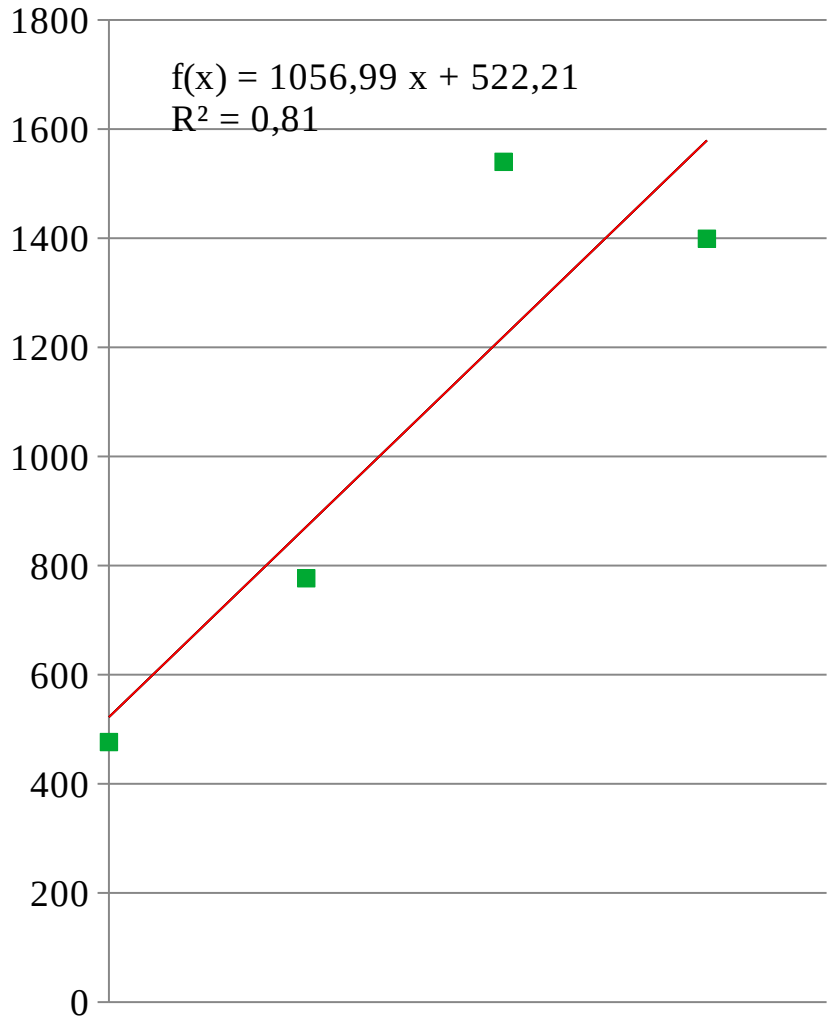


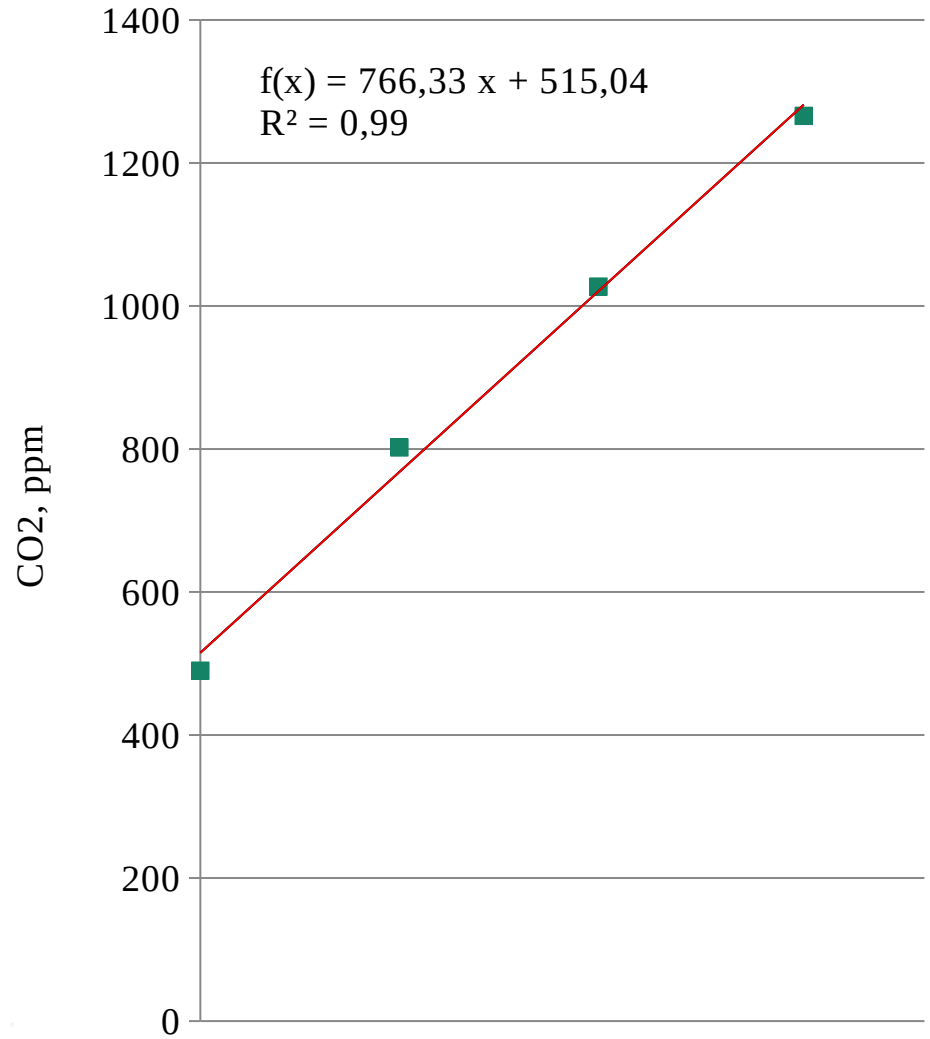
Management of peatlands and GHG emissions



Field sampling equipment

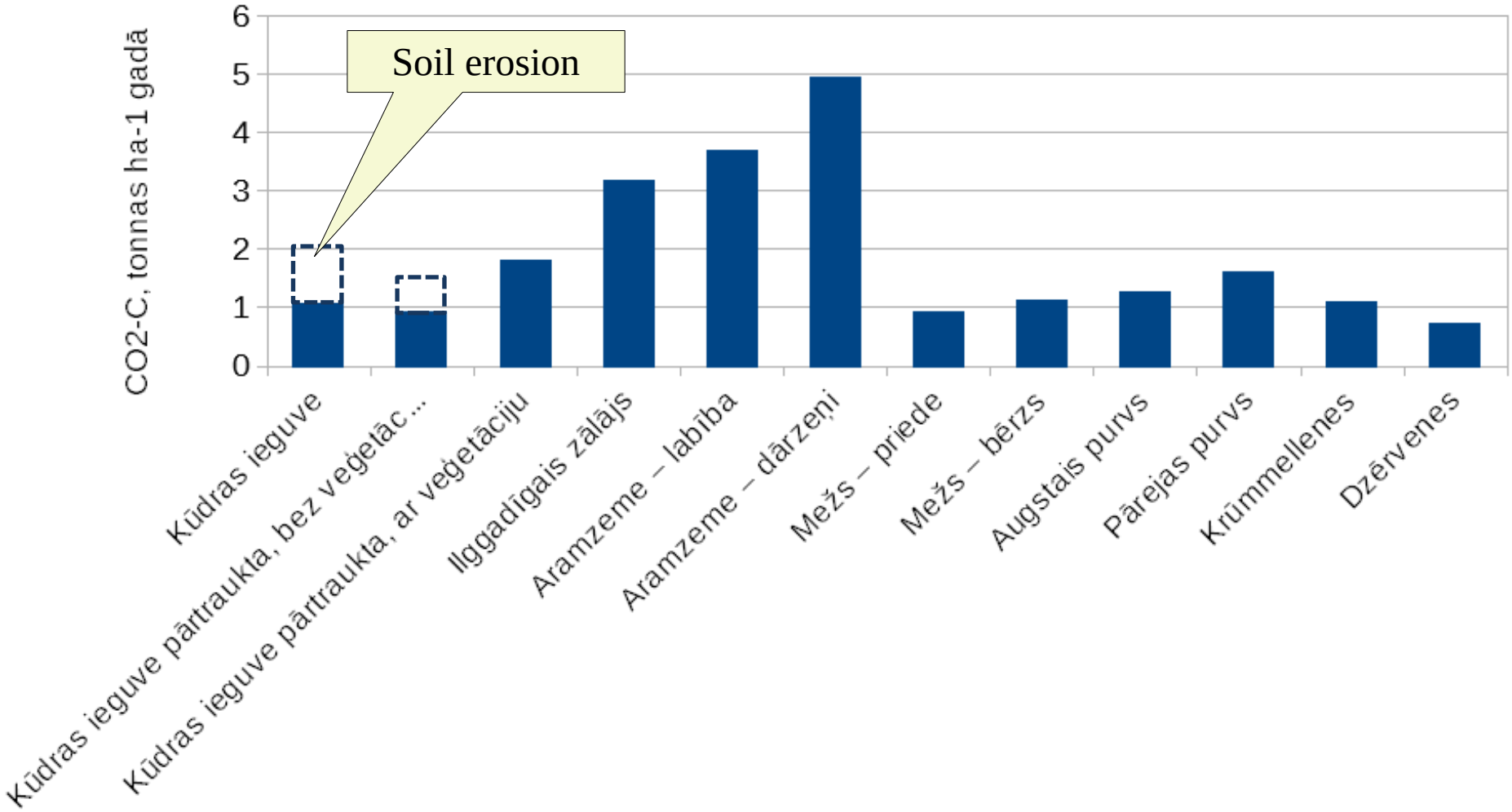
Data verification and quality control procedures



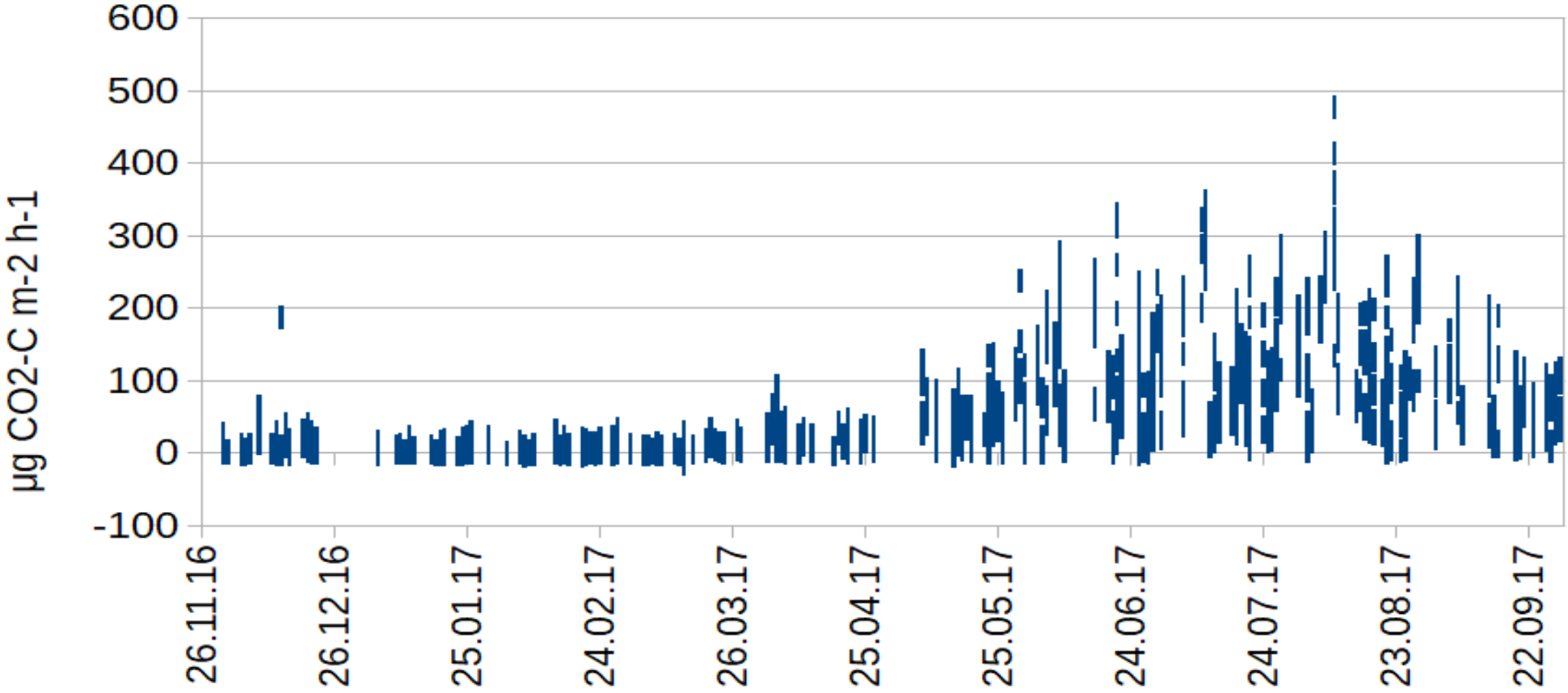


Collection of litter samples in forest lands

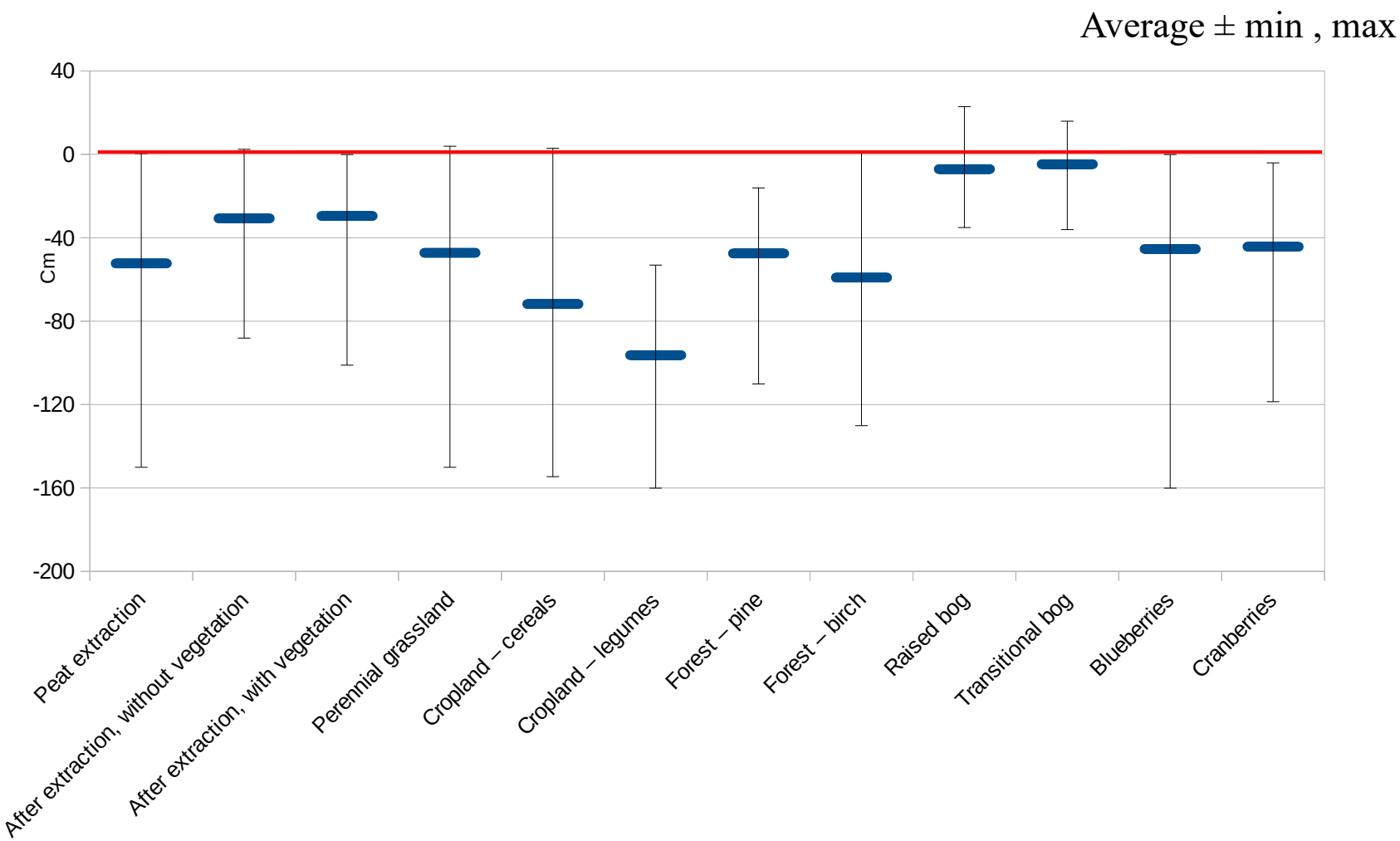
CO_2 soil fluxes



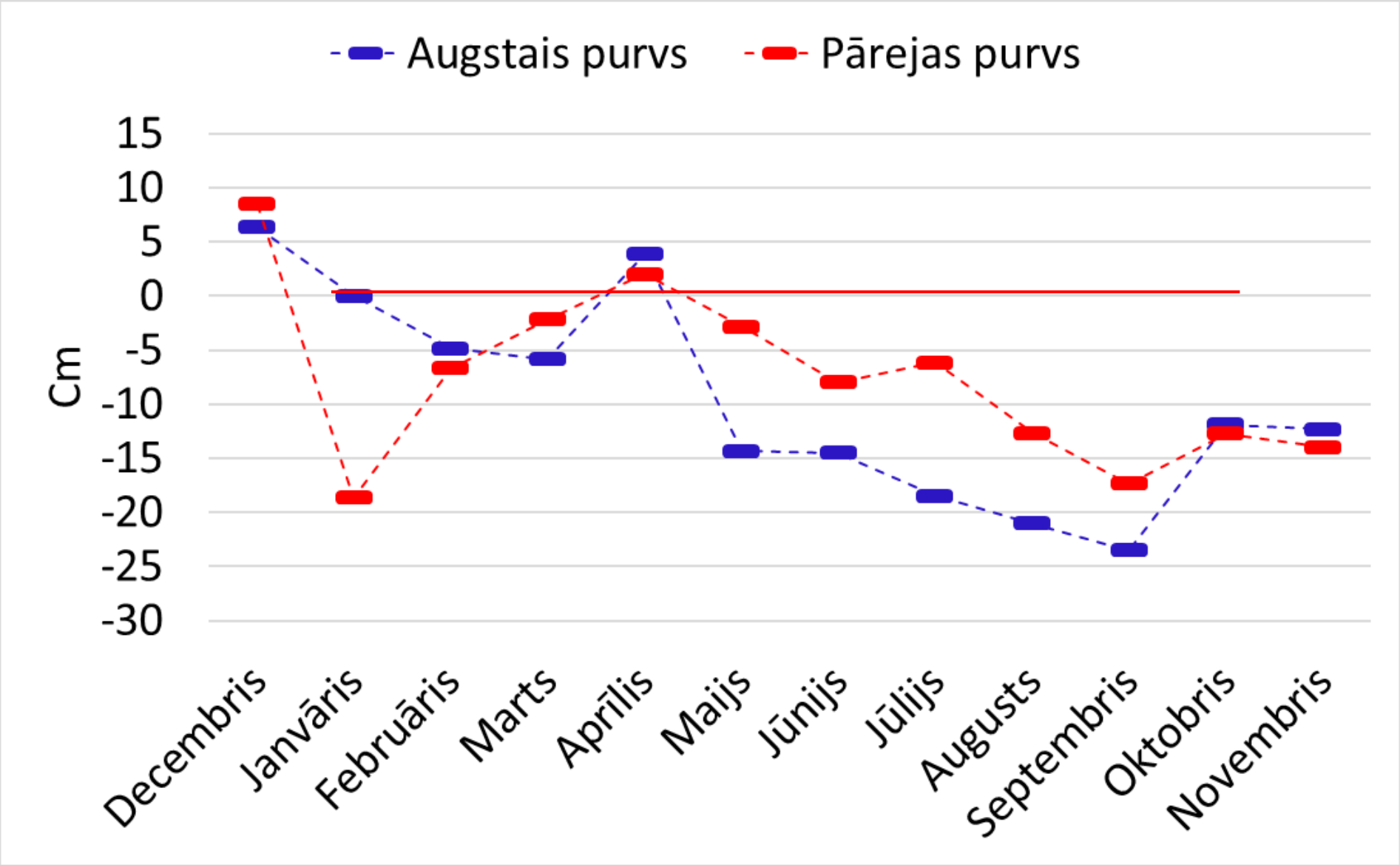
Seasonal dynamics of CO_2-C emissions



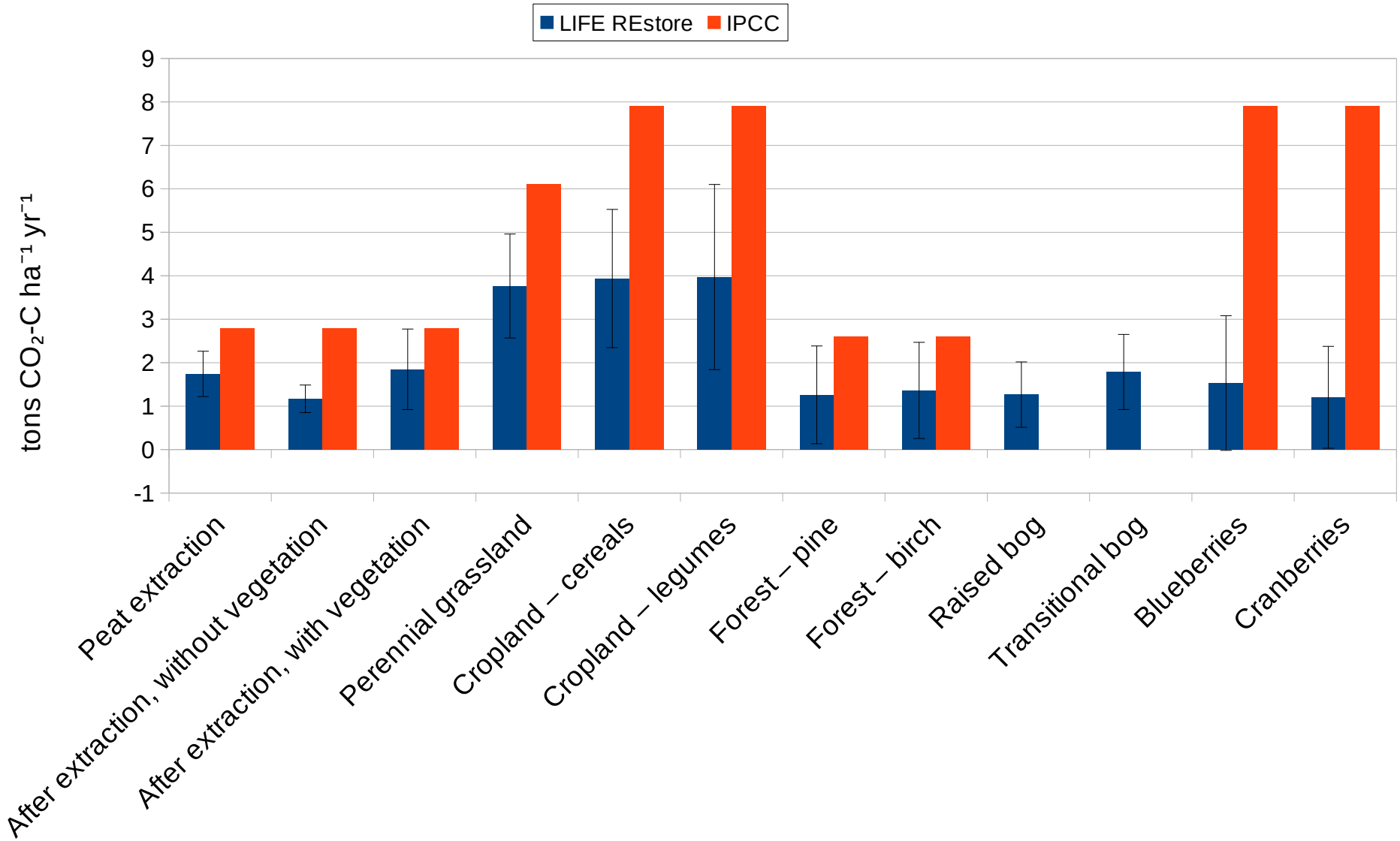
Groundwater level in different land use and vegetation type categories



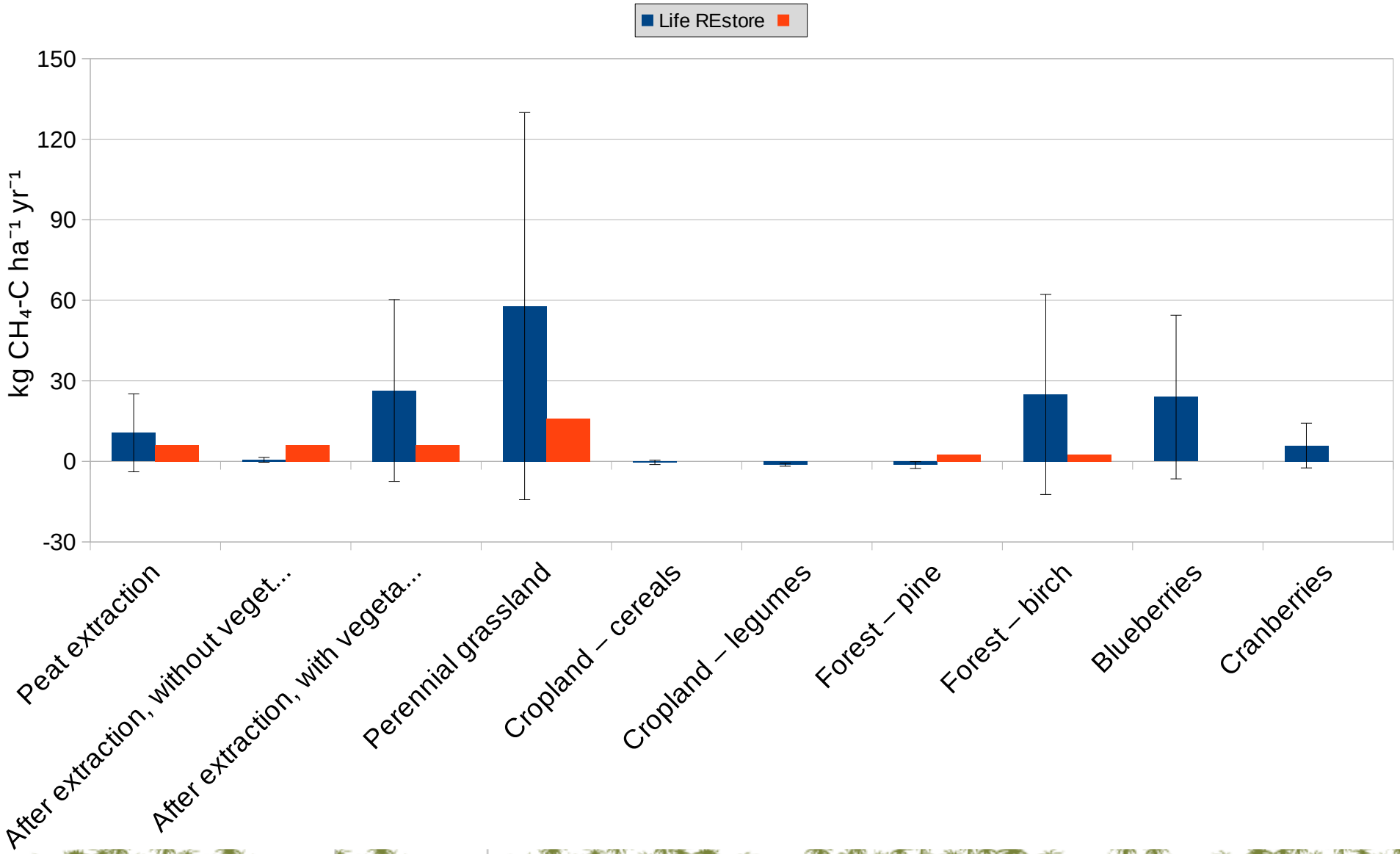
Groundwater level dynamics in the intact raised and transitional bogs



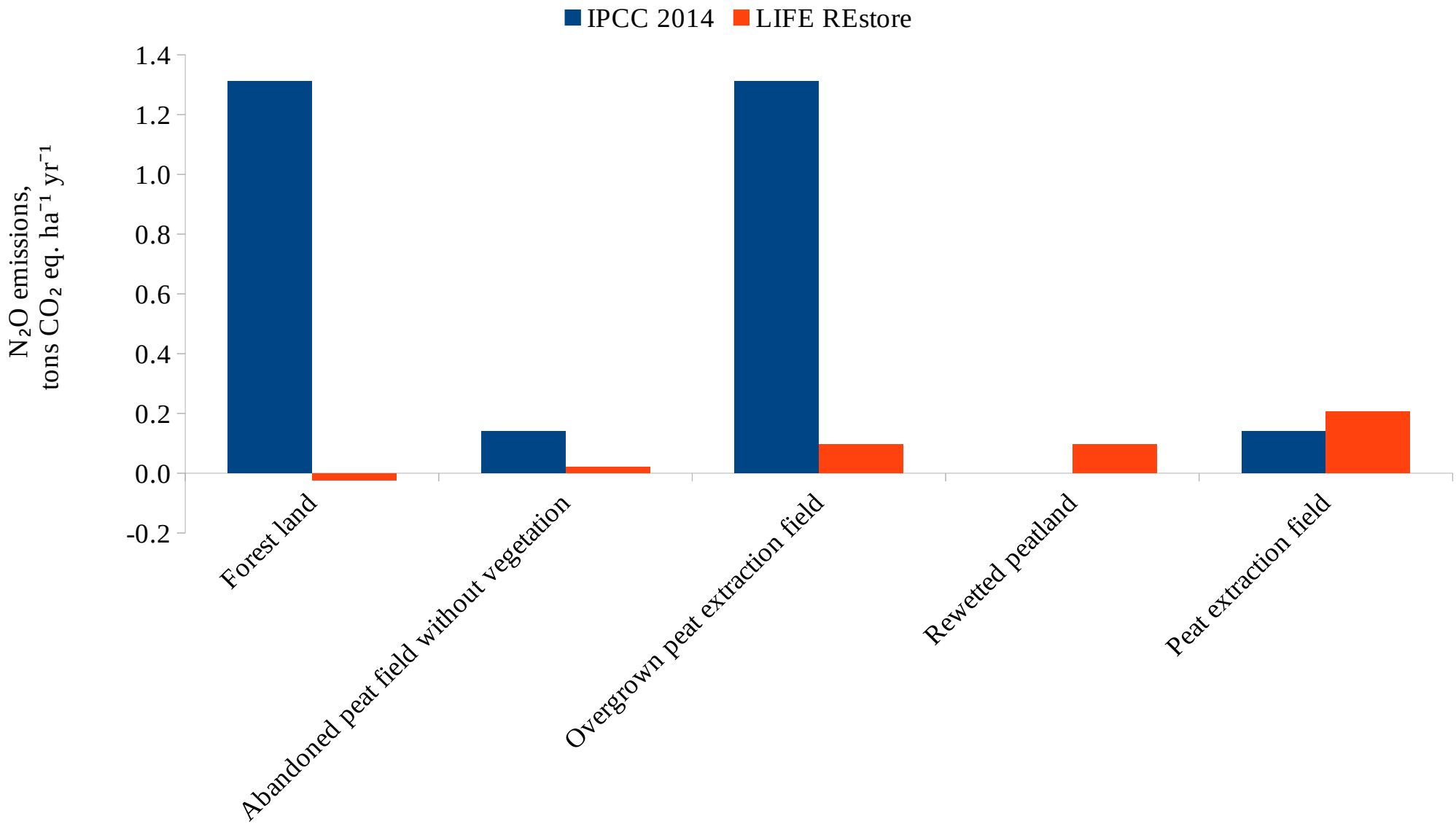
CO_2 net ecosystem exchange



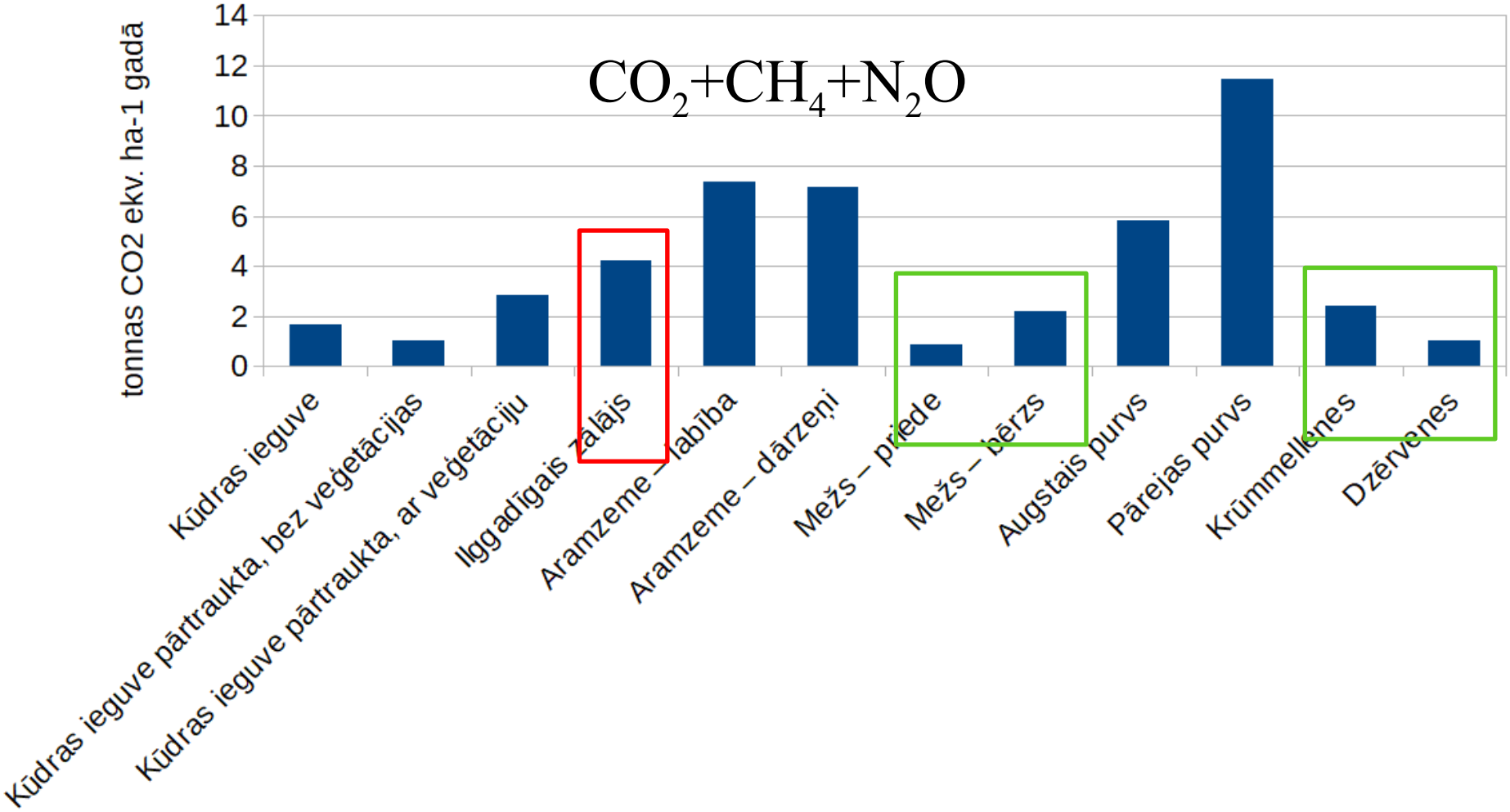
LIFE Restore and IPCC CH_4 emission factors



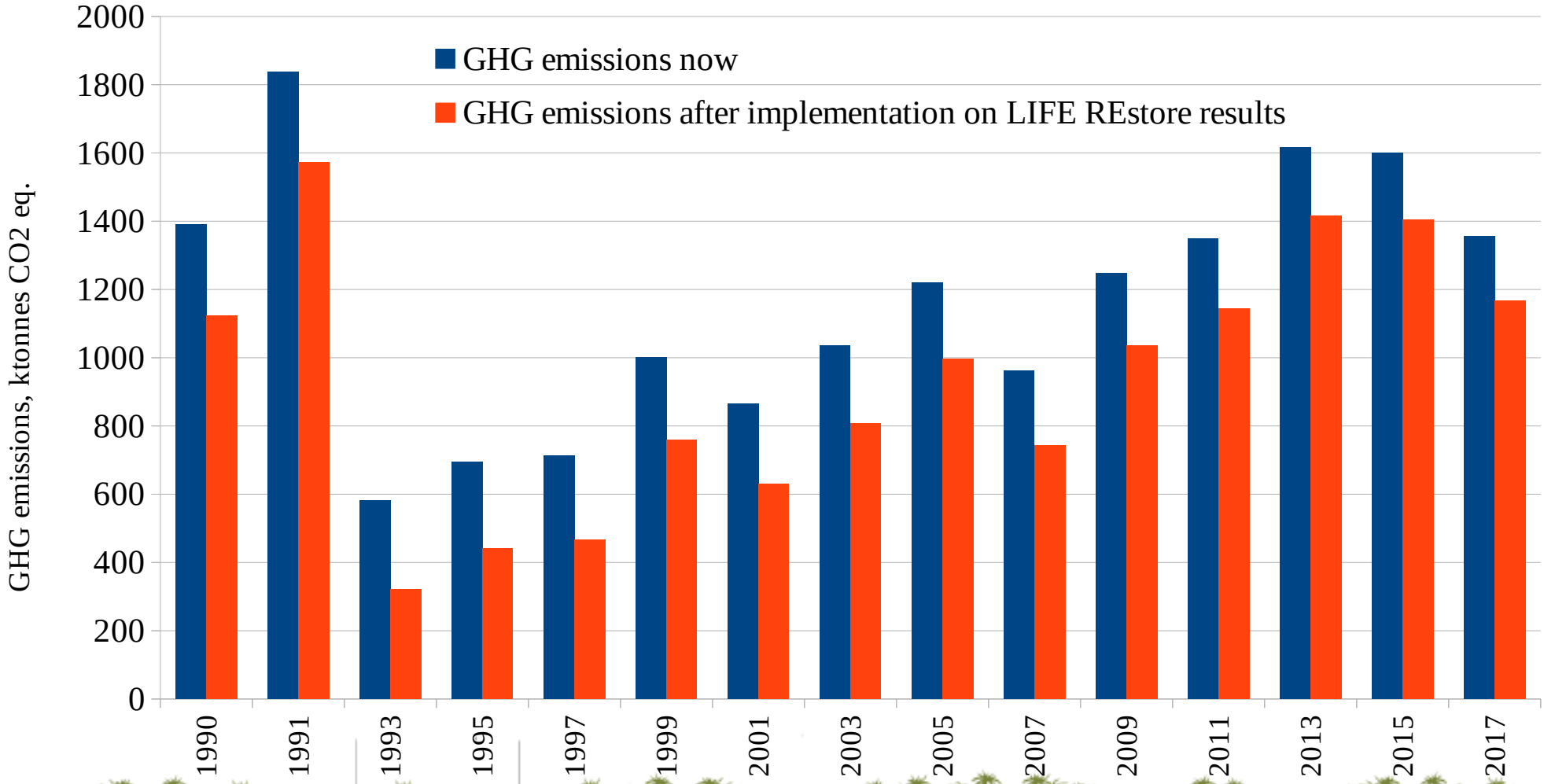
N_2O emissions in LULUCF sector



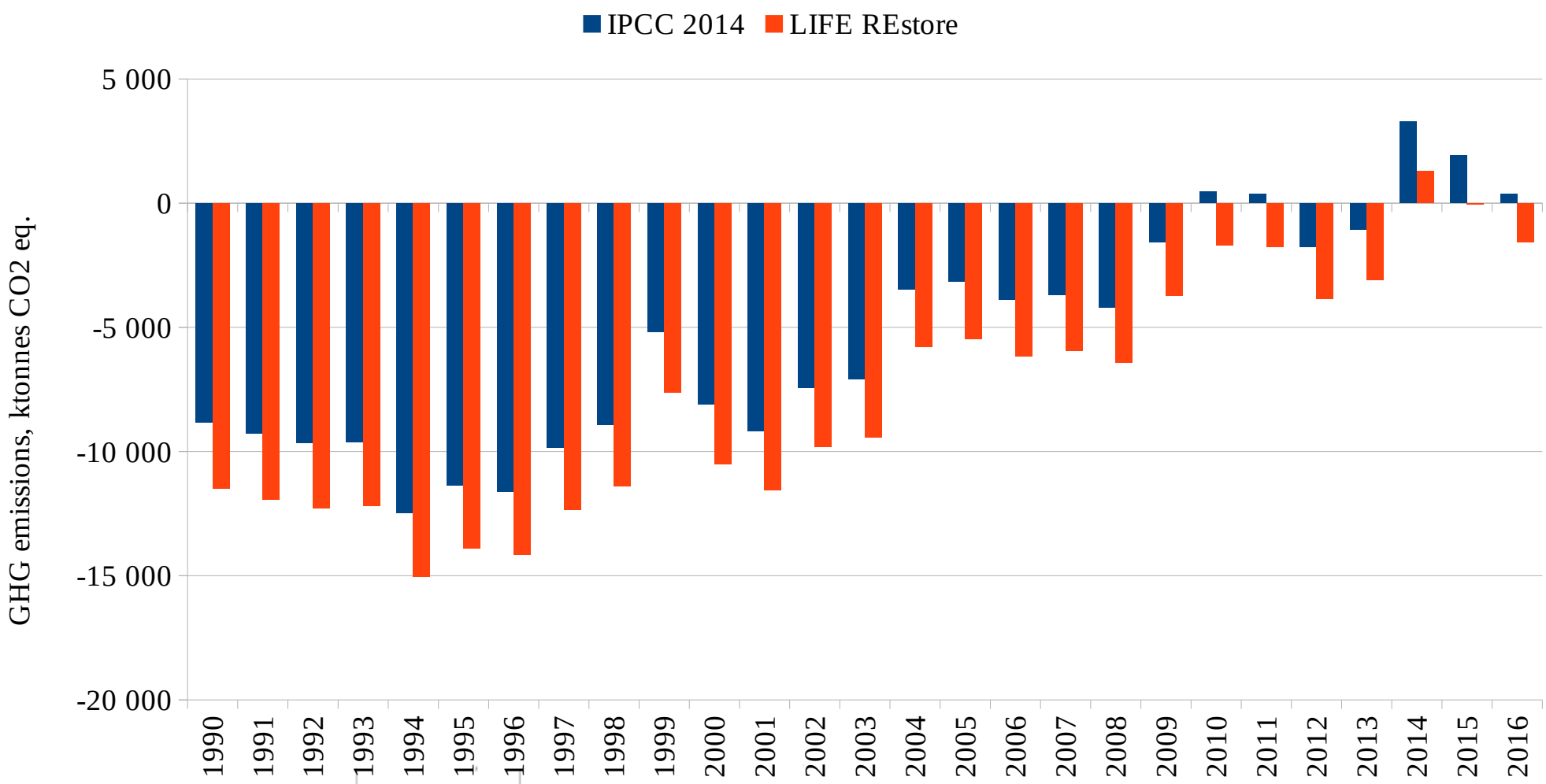
The most efficient end use of extracted peatlands *(removals in living biomass not included)*



Impact of implementation of LIFE REstore results on GHG emissions in wetlands



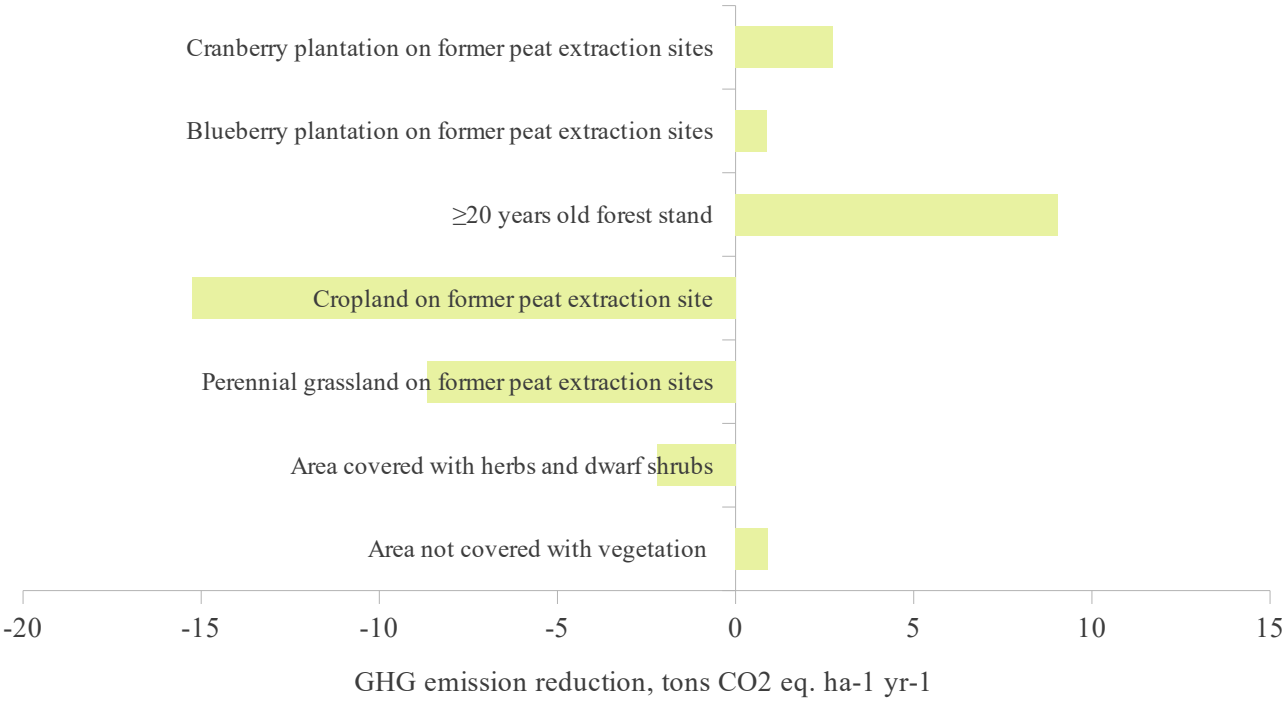
Impact of LIFE REstore results on GHG emissions in LULUCF sector in Latvia



Conclusions

- Actual GHG emissions from the most of the land use categories are about twice less than the emission estimates according to IPCC 2014.
- The most efficient management strategies is afforestation, blueberry and cranberry production (where possible).
- GHG emission reduction due to rewetting may be considerably overestimated, however further studies are necessary to evaluate impact of groundwater level and site fertility.
- Next step is elaboration of GHG emission factors for nutrient-rich organic soils (LIFE OrgBalt project)

More information:



GHG mitigation potential in 30 year period

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