



Preliminary results from 1st year measurements in demonstration sites in Latvia

LIFE OrgBalt: «Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland»

LIFE18 CCM/LV/001158

5th Steering group meeting

Date: 3 February 2022, 10:00 – 11:30 (EET time)

Venue: Remote meeting (Teams platform)

LIFE OrgBalt, LIFE18 CCM/LV/001158

EU LIFE Programme project

“Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland”



Latvia University
of Life Sciences
and Technologies

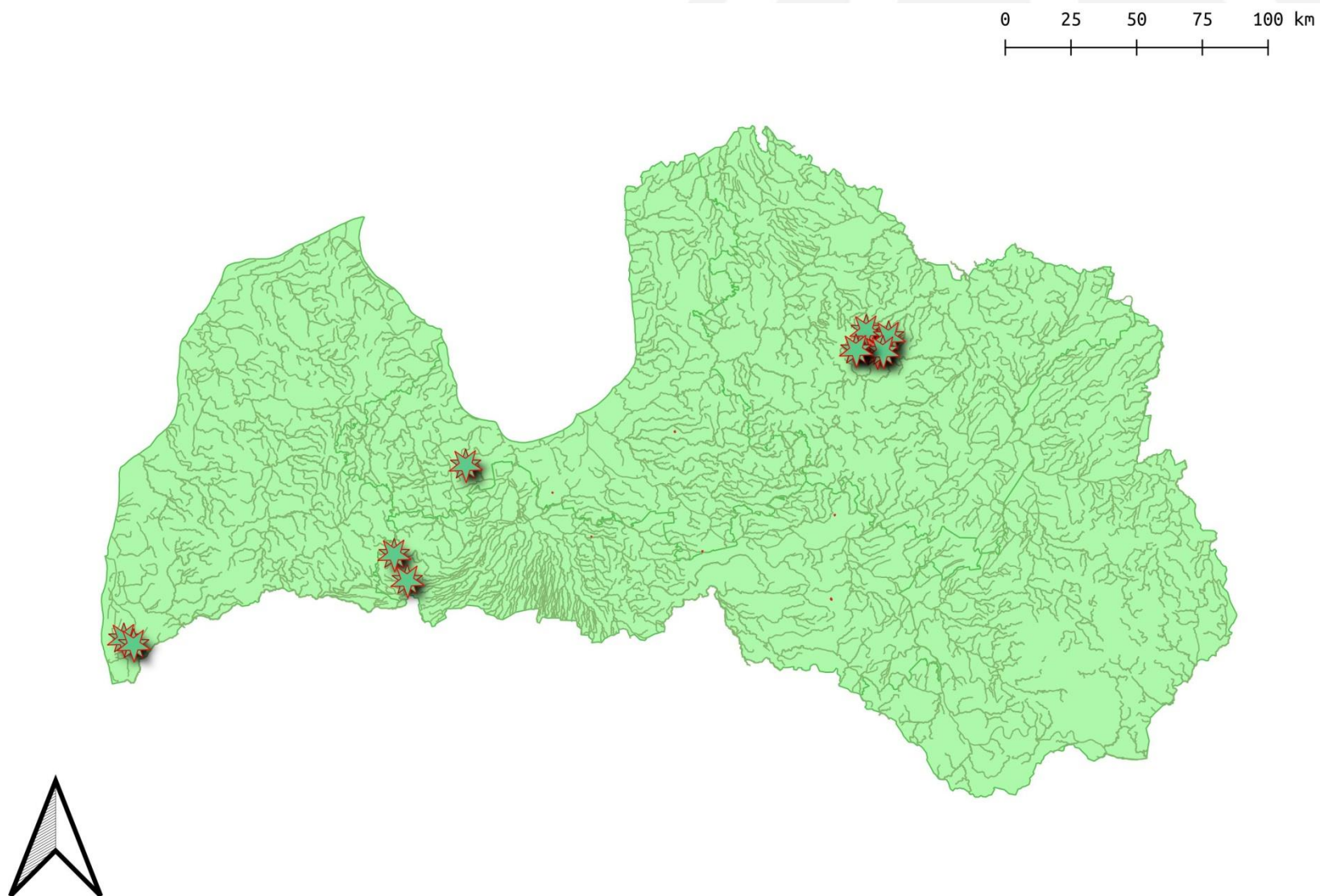


BALTIJAS KRĀSTI



Partner in the
GREIFSWALD
MIRE
CENTRE

Location of demo sites in Latvia



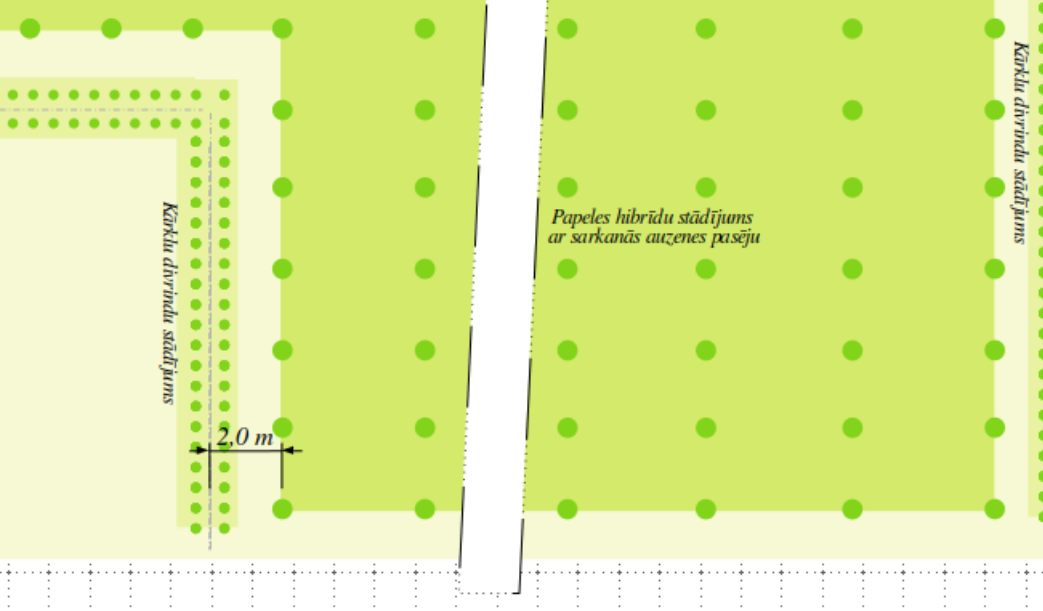
Conversion of cropland to grassland, short rotation coppice crop and shelter belts around drainage ditches (LVC301, LVC306, LVC310)

- Land owner – ZS “Andrupēni”, partner responsible for implementation – LULST.
- Reference sites in Latvia before implementation – LVC101; reference sites after implementation (steady stage) in Latvia – LVC102 & LVC103 (LVC301), LVC115 (LVC306 & LVC310).
- LVC301 – conversion of cropland to grassland for fodder production.
- LVC306 – agroforestry – coppice crops (hybrid poplar) and fodder production.
- LVC310 – management of fast growing trees and bushes (hybrids of poplars and willows) in shelter belts around drainage ditches.



Grass field and shelter belt

The diagram illustrates a grass field and a shelter belt. The field is divided into two sections by a central white vertical strip. The left section is labeled "Grāvis" (Grass) and shows a row of green dots representing grass. The right section is labeled "3,5 m" and shows a row of green dots representing grass. The distance between the rows of grass is marked as "3,5 m". The width of the grass field is marked as "2,0 m". The shelter belt is shown as a row of green dots on the right side of the field.



Afforestation grassland with organic soils (LVC302)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC102 & LVC103; reference sites after implementation (*steady stage*) – LVC104, LVC106 & LVC105 (*to evaluate impact of wood ash*).
- Things done soil scarification by mounding, planting of spruce (*done by FRS*).



Black alder forest paludiculture (LVC303)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC102 & LVC103; reference sites after implementation (*steady stage*) – LVC109 & LVC111.
- Things done: removal of bushes, soil preparation by mounding (*done by FRS*).
- Things to be done: planting of black alder, weed control during 2 seasons (*to be done by FRS*).



Growing of legumes in the integrated cropping system to increase carbon input and reduce N₂O emissions (LVC304)

- Land owner: SIA "Latvijas grauds" & SIA "Jaunkaudzītes".
- Reference site before implementation – LVC101; reference sites after implementation (*steady stage*) – LVC102 & LVC103.
- Things done: growing of cereal according to recommendations for the integrated systems (*done by LULST contractors*).
- Things to be done: sowing of legumes and management according to recommendations for the integrated systems (*to be done by LULST contractors*).



Regulation of groundwater level in farmland (LVC305)

- Land owner: LULST / Ministry of Agriculture.
- Reference sites before implementation – LVC102 & LVC301 reference sites after implementation (*steady stage*) – literature review.
- Things done: management of area for fodder production according to recommendations for the integrated systems (*done by LULST*).
- Things to be done: establishment of water level regulation facilities (*to be done by LULST contractors*).



Wood ash application in spruce forest after commercial thinning (LVC307)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC104 & LVC113 (area where wood ash is not applied); reference sites after implementation (*steady stage*) – LVC307, LVC105 & LVC106.
- Things done: commercial thinning to permitted basal area, spreading of stabilized wood ash, 3 tons ha⁻¹ (*done by FRS*).



Selective harvest as alternative to clear-felling in spruce forest (LVC308)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC308 (*before harvest*), LVC104 & LVC106.
- Reference sites after implementation (*steady stage*) – LVC109 & LVC111.
- Things done: selective felling to permitted basal area (*done by FRS*).



Regeneration of forest stand with wet organic soil by mounding and planting of black alder – forest paludiculture (LVC309)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC309 (*before harvest*); reference sites after implementation (*steady stage*) – LVC309 & LVC109.
- Things done: tendering procedure completed (*done by FRS*).
- Things to be done: clear-felling, establishment of network of shallow furrows and mounding, planting of black alder, weed control during vegetation season, plant protection if necessary (*to be done by FRS*).



Planting of black alder on mounds nearby buffer zones of natural streams – forest paludiculture (LVC311)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC311, LVC303 & LVC109; reference sites after implementation (*steady stage*) – LVC119 & LVC111.
- Things to be done: clear-felling, establishment of network of shallow furrows and mounding, planting of black alder, weed control during vegetation season, plant protection if necessary (*to be done by FRS*).



Regeneration of forest stand with wet organic soil by mounding and planting of spruce – forest paludiculture (LVC312)

- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC312, LVC309 & LVC109; reference sites after implementation (*steady stage*) – LVC110 & LVC111.
- Things to be done: clear-felling, establishment of network of shallow furrows and mounding, planting of spruce, weed control during vegetation season, plant protection if necessary (*to be done by FRS*).

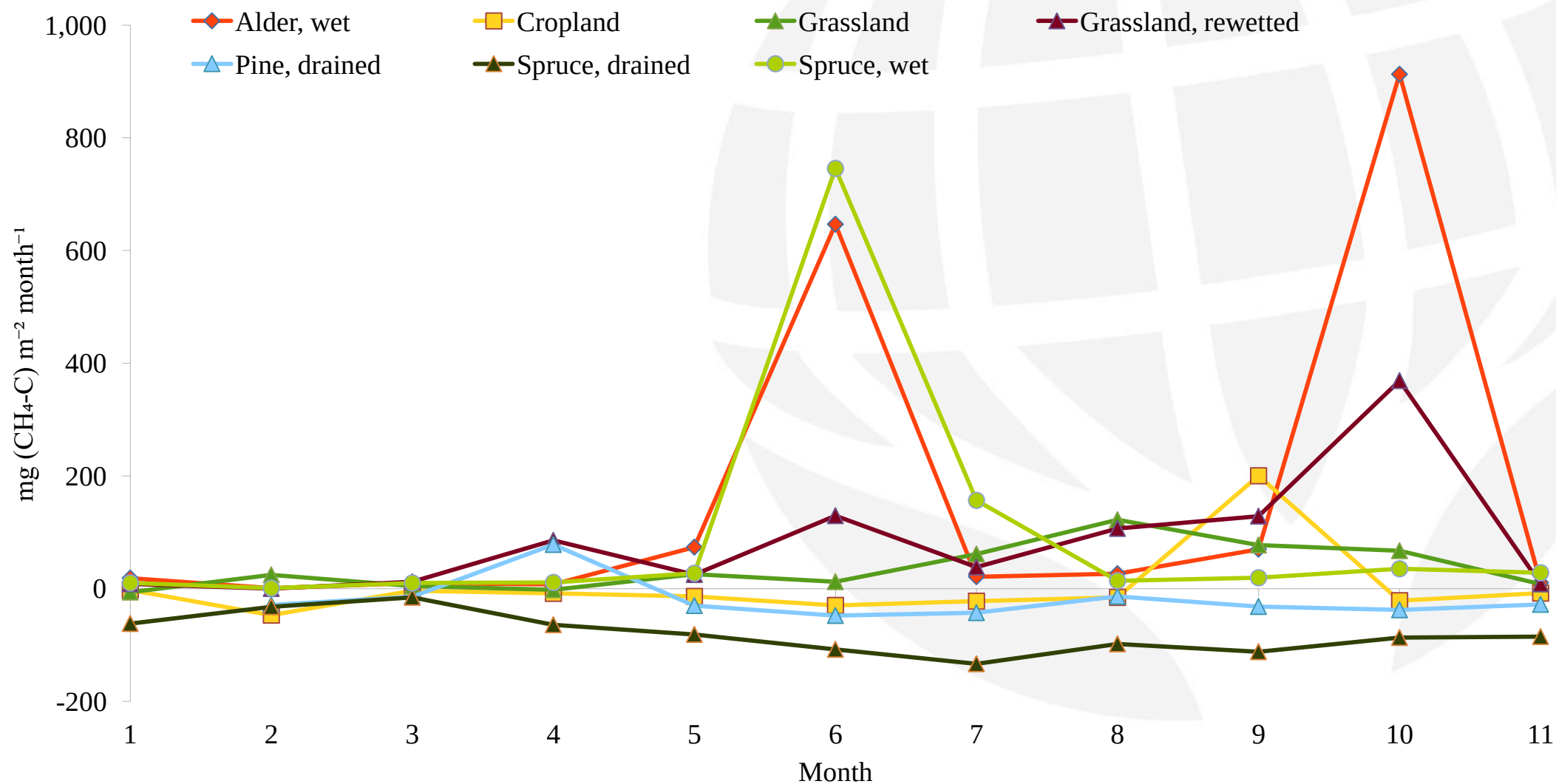


Strip harvesting as alternative to clear-felling in pine forest (LVC313 & LVC116)

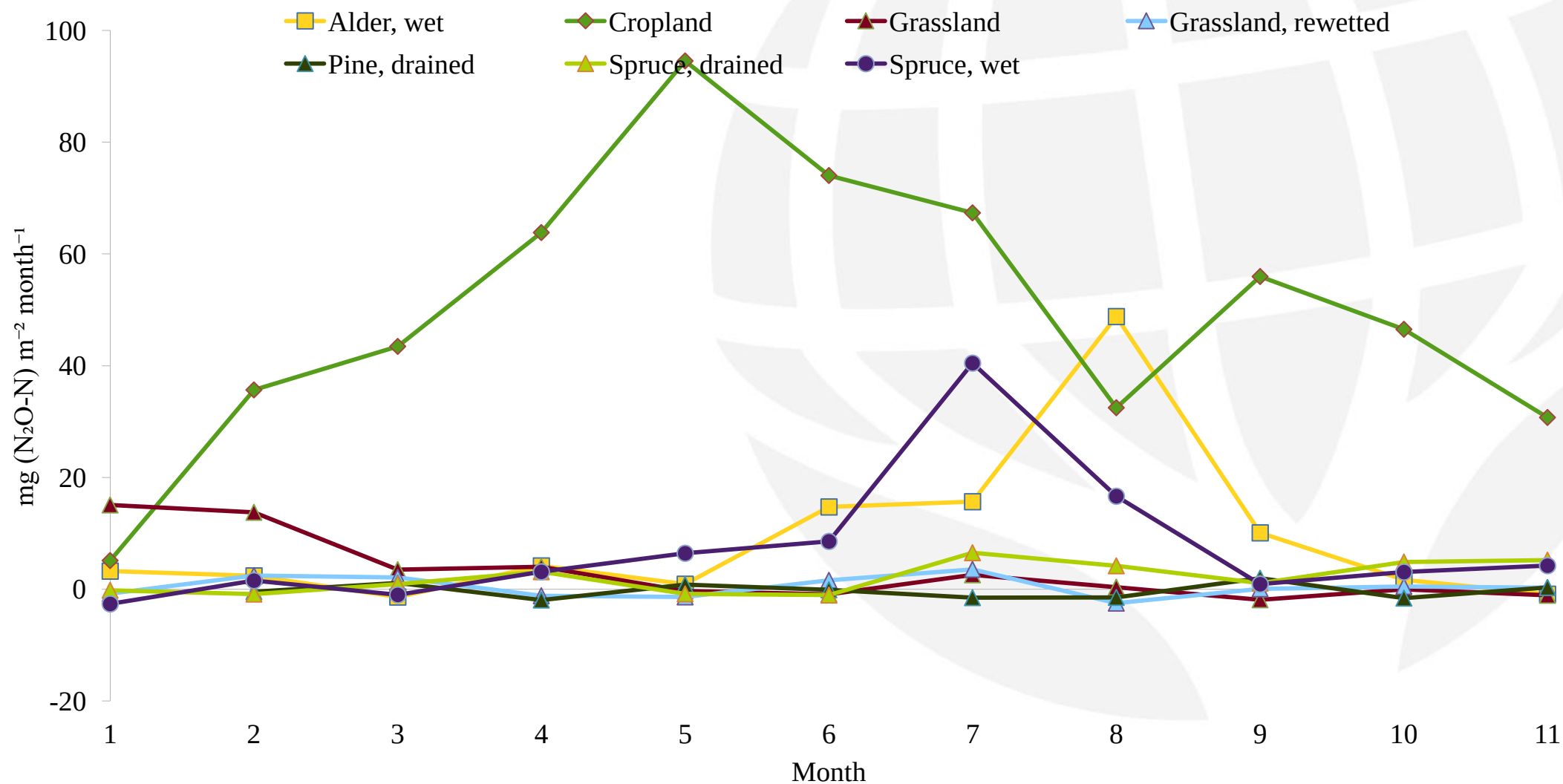
- Land owner: Forest Research Station (FRS).
- Reference sites before implementation – LVC116 (*clear-felling*), LVC107; reference sites after implementation (*steady stage*) – LVC313 (*and data from Finland*).
- Things done: strip harvesting (50% of *basal area*) and clear-felling in reference site (*done by FRS*).
- Things to be done: soil scarification by mounding, planting of pine, weed control for 2 seasons (*to be done by FRS*).



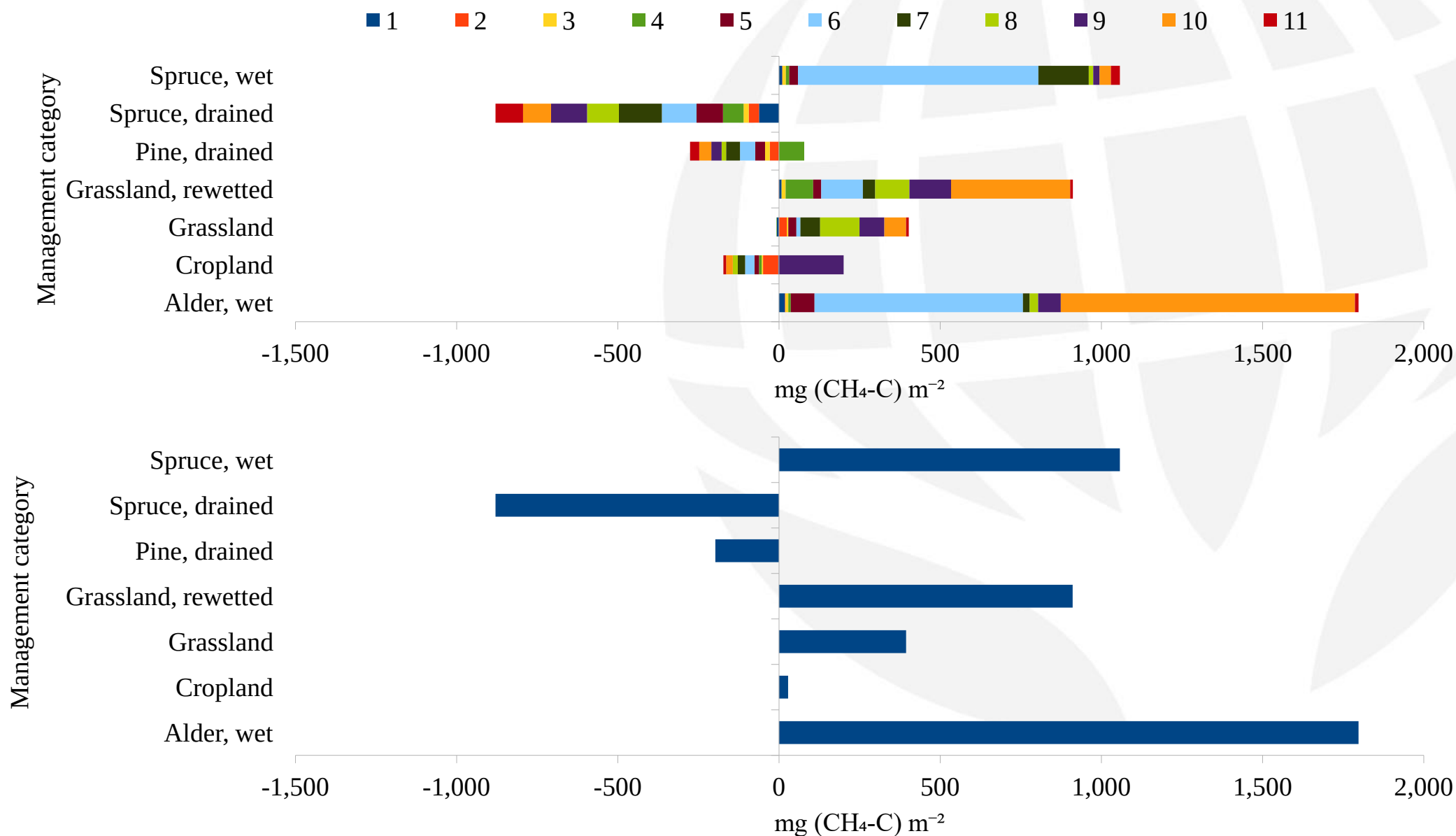
Methane (CH₄) emissions



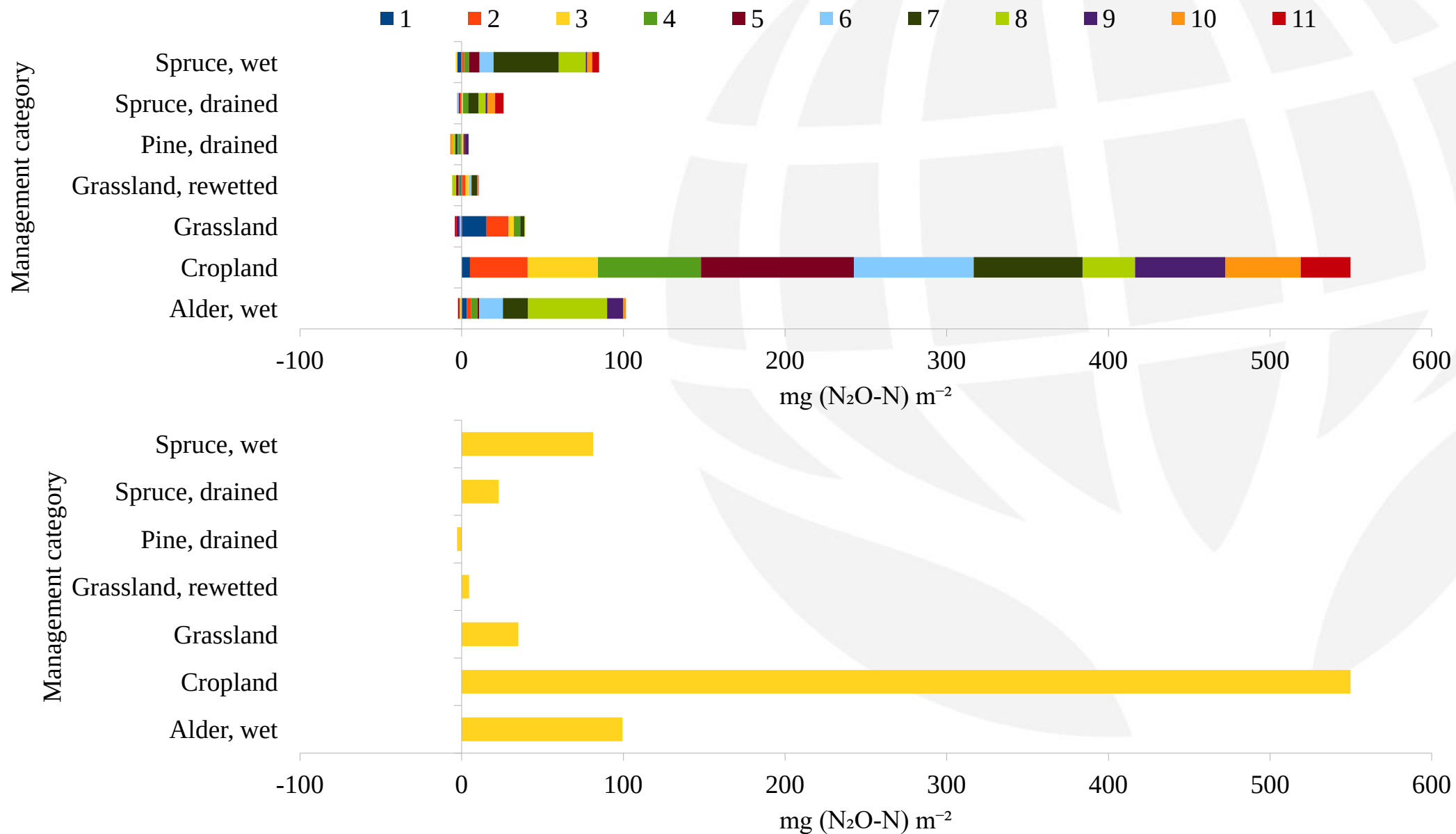
Nitrous oxide (N₂O) emissions



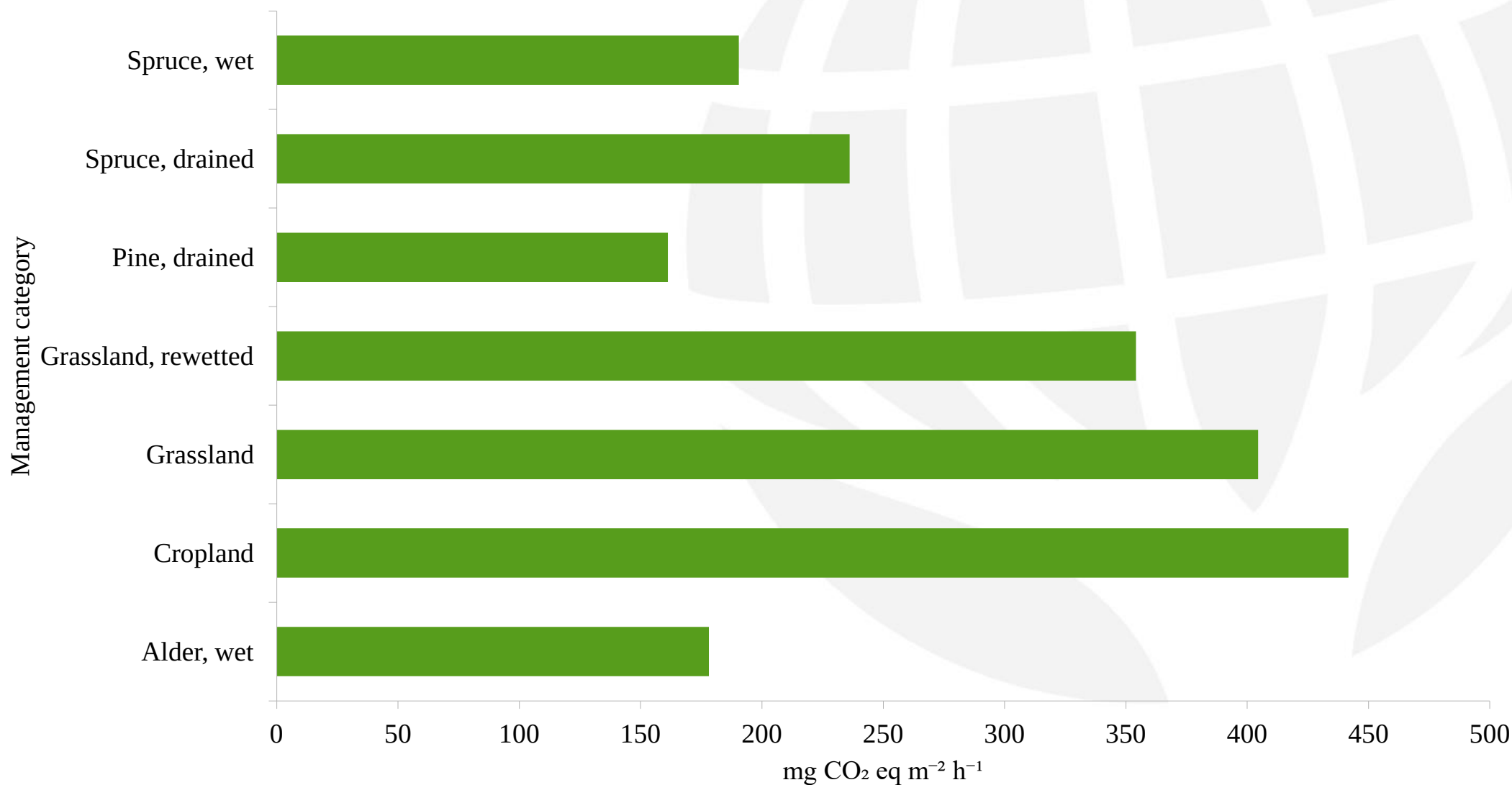
Summary of yearly methane (CH₄) emissions



Summary of nitrous oxide (N₂O) emissions



Average annual soil GHG fluxes in demo sites



Thanks to everybody participating and supporting us in this work!



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