

Permanent research plots in Bengkalis, Riau

Carbon dynamics and water regimes of
re-wetted peatlands

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In collaboration with the University of Riau, the Center for International Forestry Research (CIFOR) has established permanent plots in Tanjung Leban village, Bengkalis regency, Riau province. The site, which is owned by the local community, is about 50 km east of the city of Dumai and easily accessed by car.



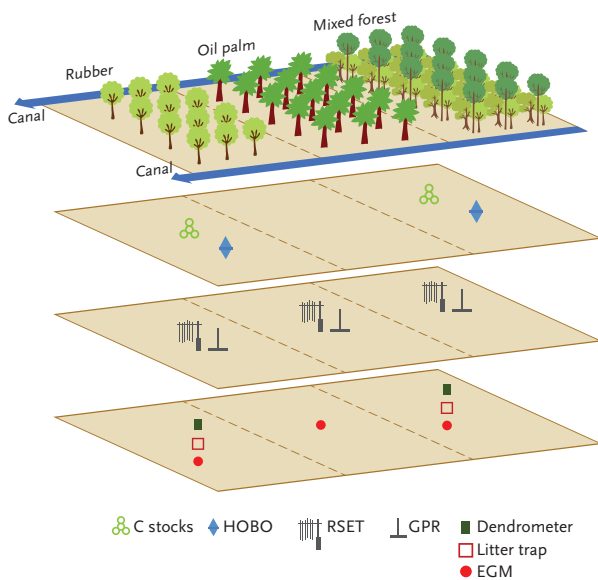


Establishing the plots will result in long-term monitoring of the dynamics of carbon (C) cycling in restored (revegetated and re-wetted) peatlands. The observed parameters include C stocks, peat depth, water table fluctuation, net primary production (NPP) and surface elevation change. The activities involve faculty members and students from the University of Riau and members of the local community.

not planted in a regular pattern while oil palm is planted following a typical 9x9 m² triangular design. Each different land use covers an area of around 1 ha. As shown, two canals had been constructed, and the water level is controlled using a water gate operated by the community.

Site layout

The site demonstrates three different land uses of rubber, oil palm and a mix of peat swamp forest species. Both rubber and mixed forest are



What do we measure?

- C stocks are measured in rubber and mixed forest every year using non-destructive methods in four sub-plots for each land use. (See “Carbon stocks” flyer)
- Water levels are also measured in rubber and mixed forest using three HOBO data loggers. (See “Re-wetting peatlands” flyer)
- Peat subsidence is measured every six months using Rod Surface Elevation Tables (RSET) in all land uses. (See “Measuring subsidence” flyer)
- Peat depth is measured once using ground penetrating radar (GPR) in all land-use types. (See “Using ground penetrating radar” flyer)
- A combination of dendrometers, a litter traps and respiration measurements using EGM will give estimates of NPP in rubber and mixed forest. (See “Assessing peatlands productivity” flyer)

Photo by Deanna Ramsay/CIFOR



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