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CARBON DYNAMICS IN AFFORESTED PEATLAND AND ORGANO-MINERAL SOILS

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Peatlands occupy approximately 20% of the Irish landscape and contain over 50% of total soil carbon stocks. Organo-mineral soils also store significant amounts of carbon. Since the 1950s extensive areas of these soils have been afforested, primarily with exotic conifers. Current estimates suggest that 43% and 14% of the total forest estate is on peat and organo-mineral soils respectively. Afforestation can disrupt the carbon balance of these soils as drainage lowers the water table and enhances aeration of the soil. This can accelerate decomposition and soil CO₂ emissions. Recent studies in south west Ireland have investigate soil respiration in afforested blanket peatland and organo-mineral soils. Soil respiration was partitioned using trenching techniques. Soil temperature and moisture content are the primary factors controlling soil respiration. This presentation will present the results of this work and the variation in soil respiration within and between afforested blanket peatland and organo-mineral soils.