

Supplementary Information

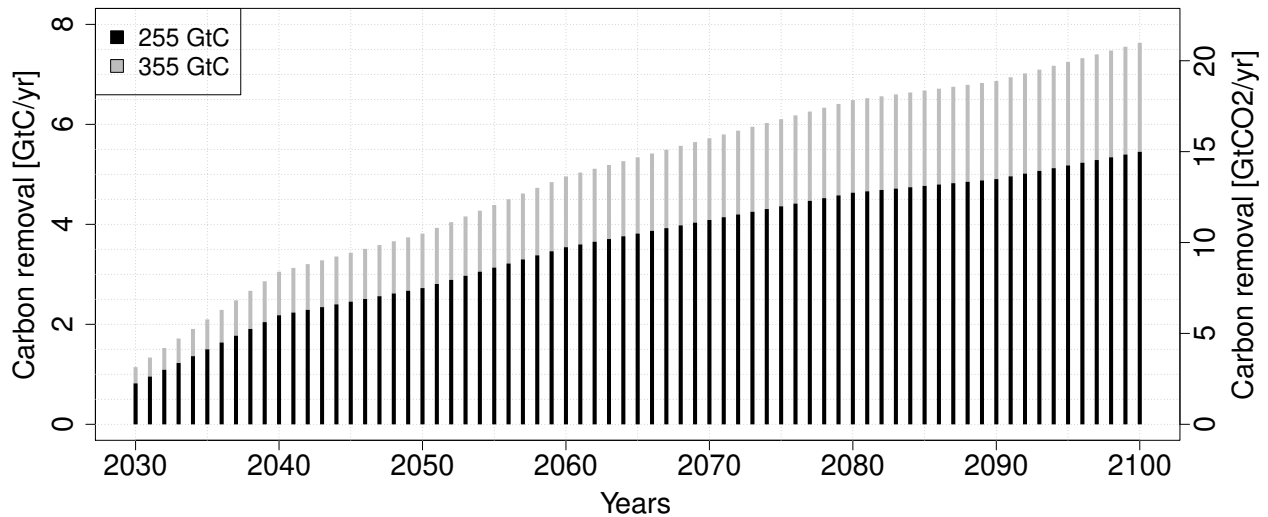


Figure S1: Amount of sequestration needed per year to stay within 1.5 °C warming (255 Gt C – black bars), after Rogelj et al. (2015), and to reach a higher sequestration demand of 355 Gt C (grey bars), obtained by linear up-scaling of the 255 Gt C curve.

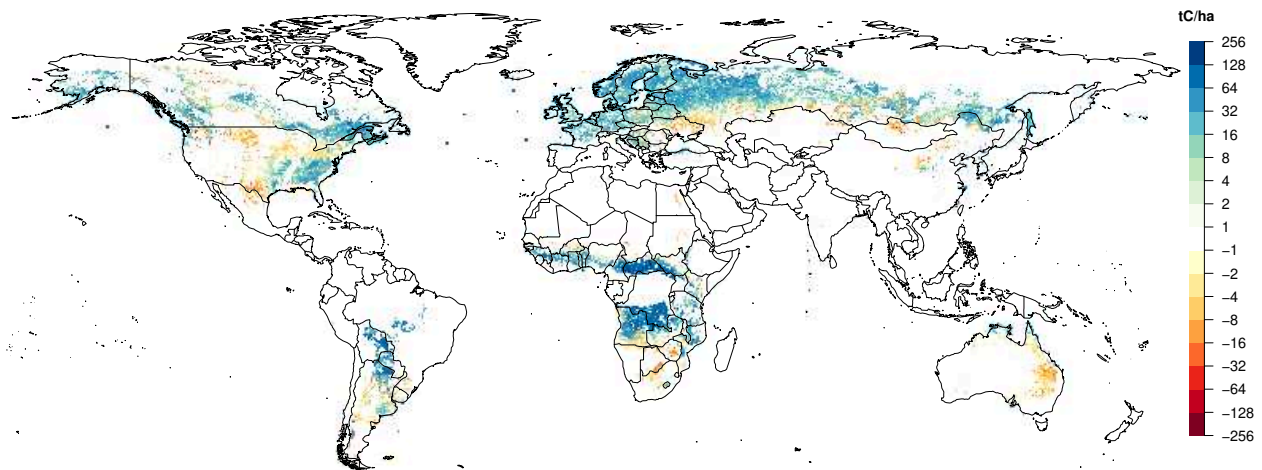
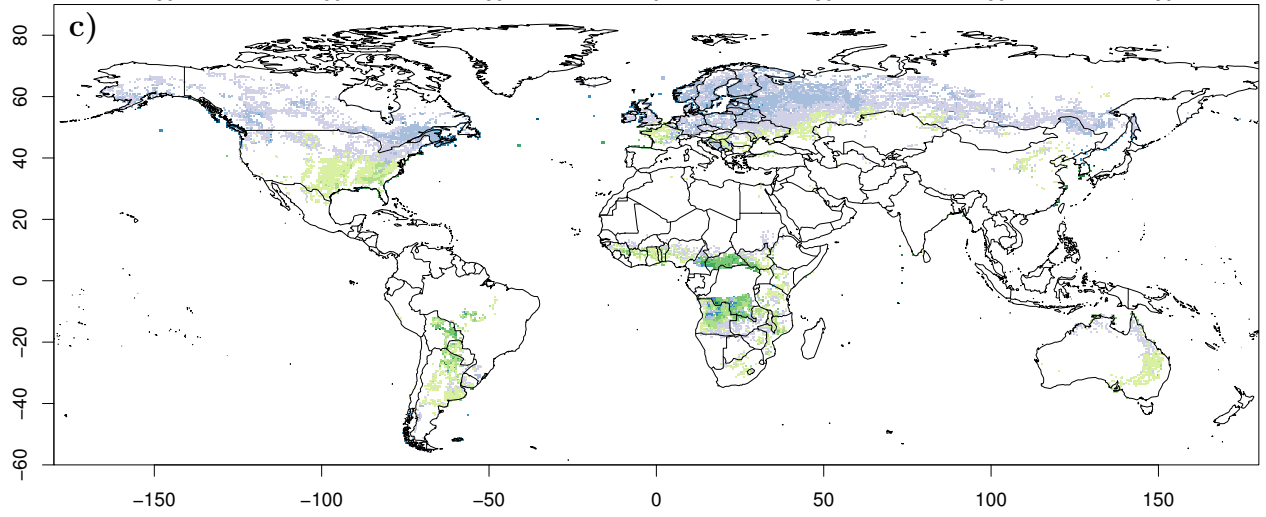
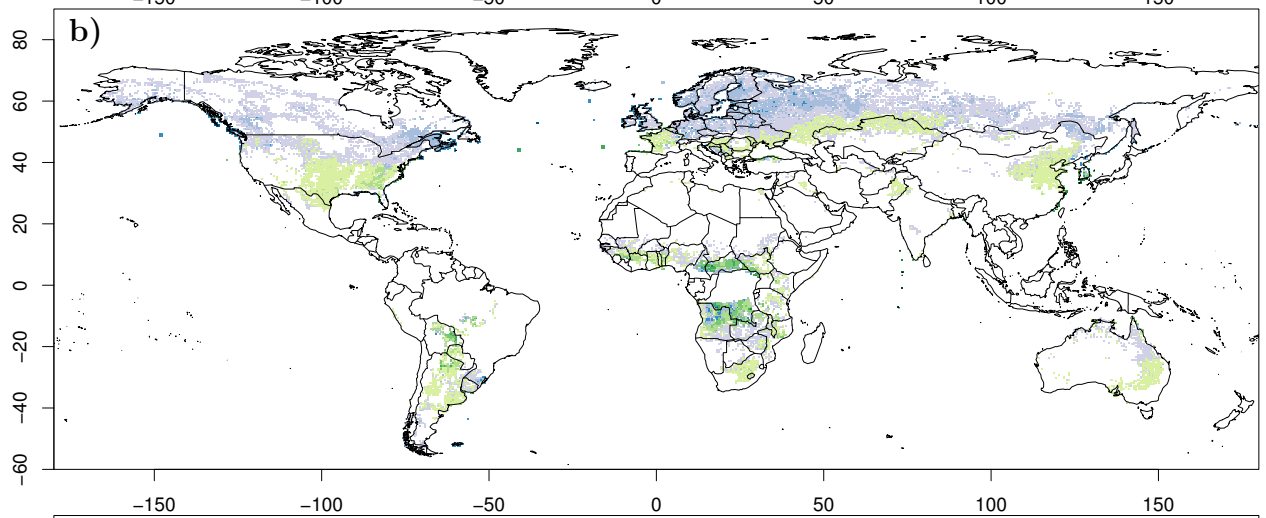
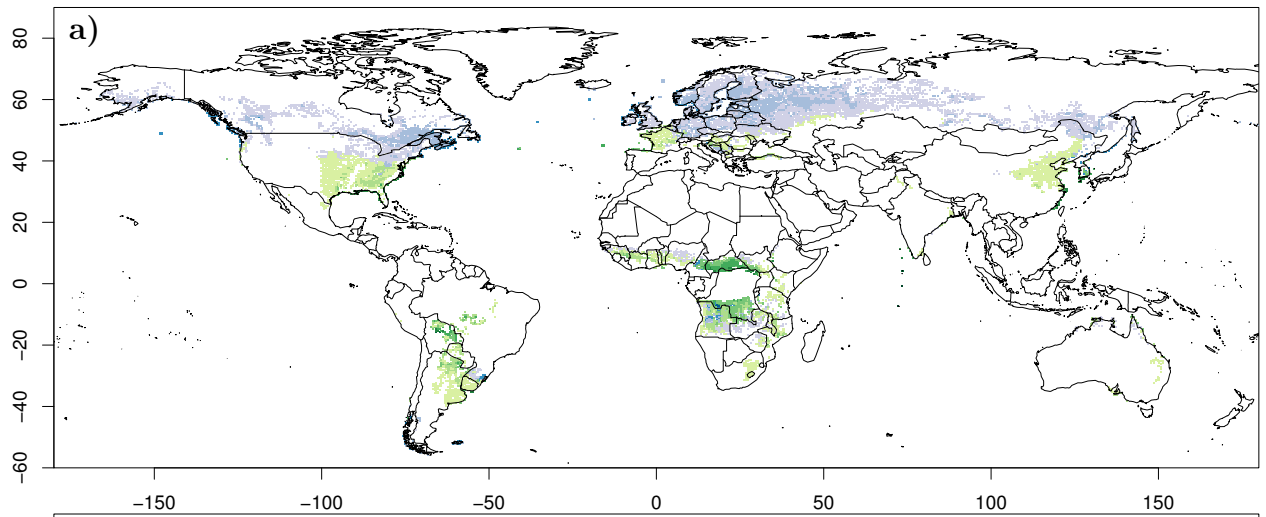
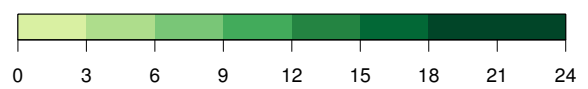
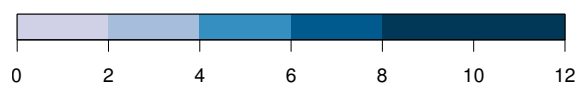


Figure S2: LPJmL-simulated LUC emissions for scenario WM and Basic parameter set, computed as the difference (2090–2099 average) relative to the reference run without BPs of the sum of the mean carbon content in soil, vegetation and litter pools, shown exemplarily for the TechUp parameter set and scenario WM.



Woody BE tC/ha/yr

Grassy BE tC/ha/yr



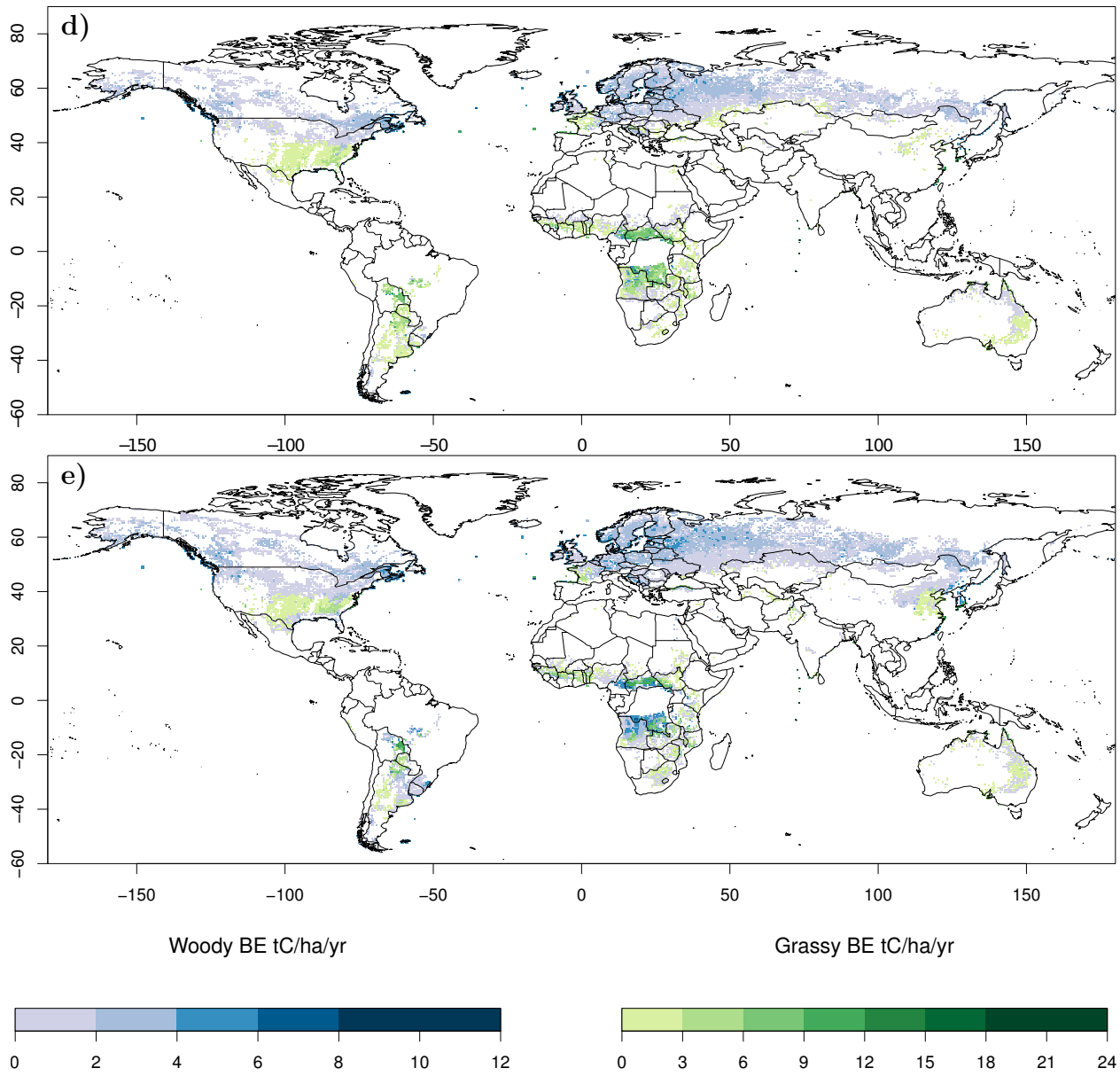


Figure S3: Simulated productivity and spatial distribution of woody and herbaceous BP types in the period 2090–2099, for a) TechUp RF, b) TechUp IRR, c) TechUp EFR, d) TechUp WM, e) IrrExp IRR.

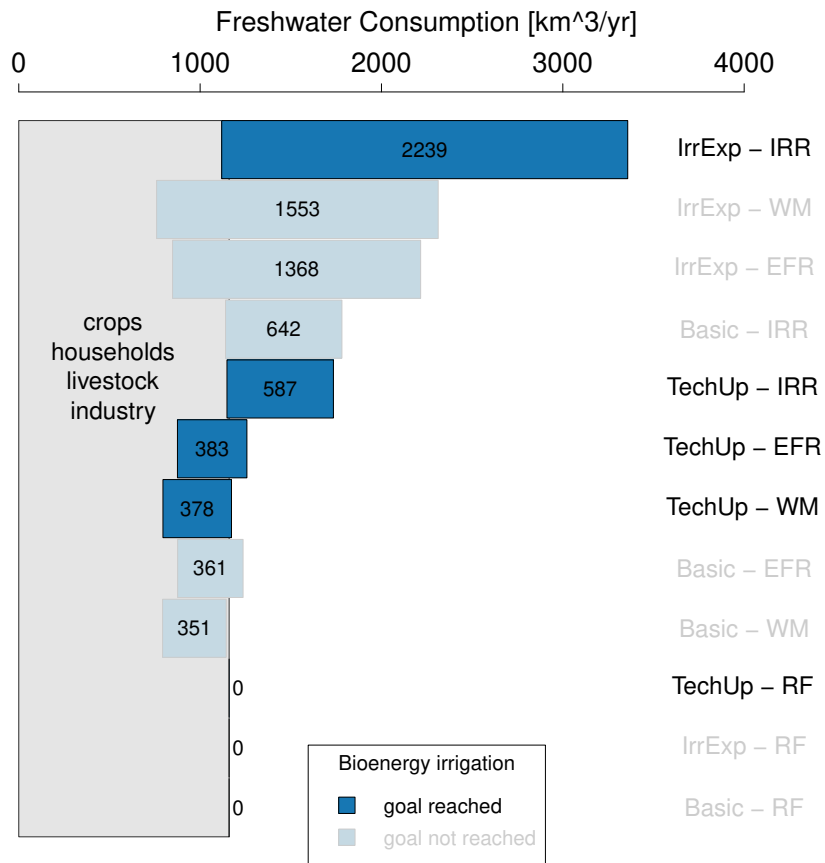


Figure S4: Yearly (mean 2090–2099) freshwater consumption of bioenergy plantations, agriculture, households, industry and livestock for scenarios targeting a carbon sequestration of 255 GtC.