

Supplementary information: Representation of phosphorus cycle in Joint UK Land Environment Simulator (vn5.5_JULES-CNP)

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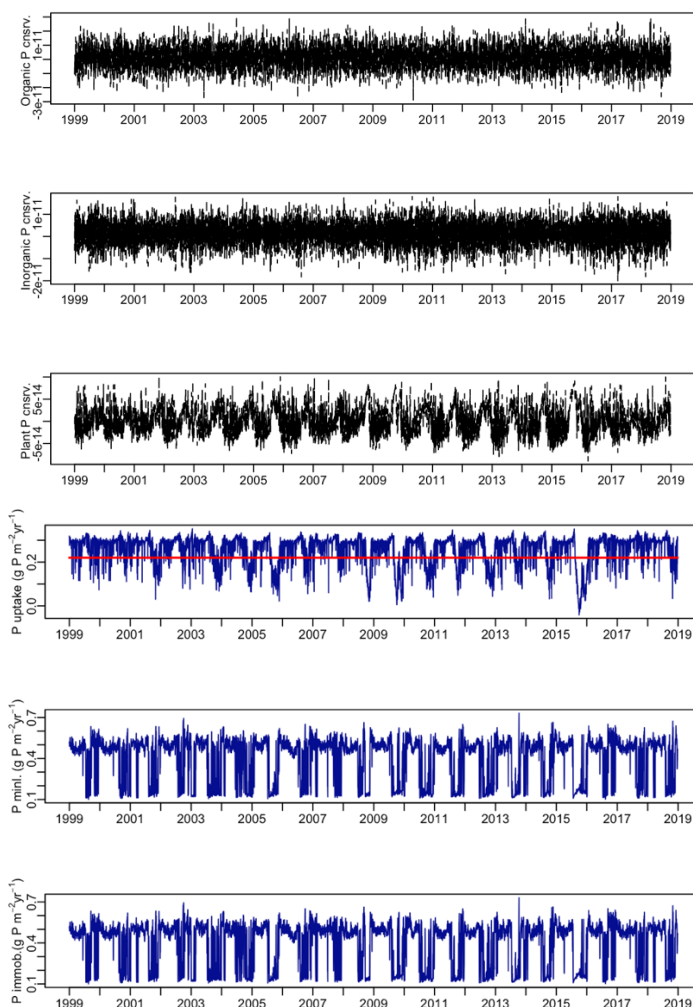


Fig. S1- Mass conservation of organic, inorganic and plant P and P mineralization, immobilization and uptake fluxes after spin-up.

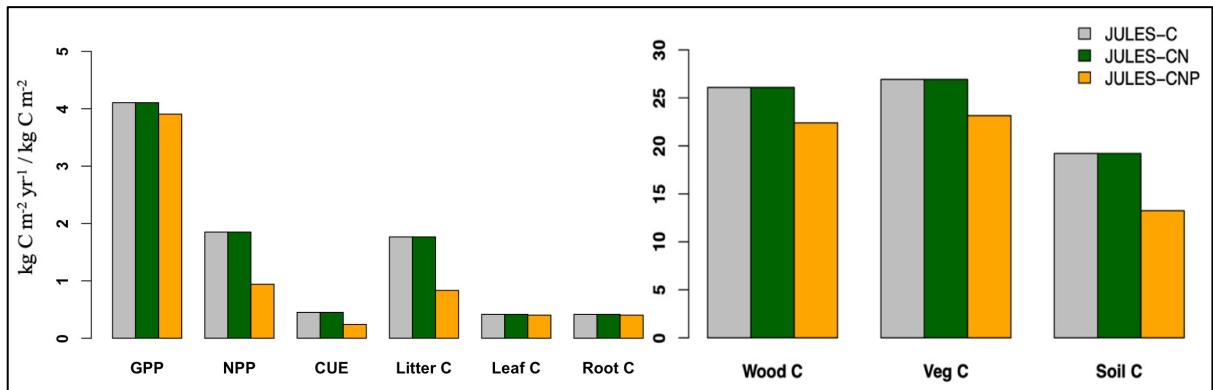


Fig. S2- JULES C, CN, CNP modelled C pools and fluxes under eCO₂.

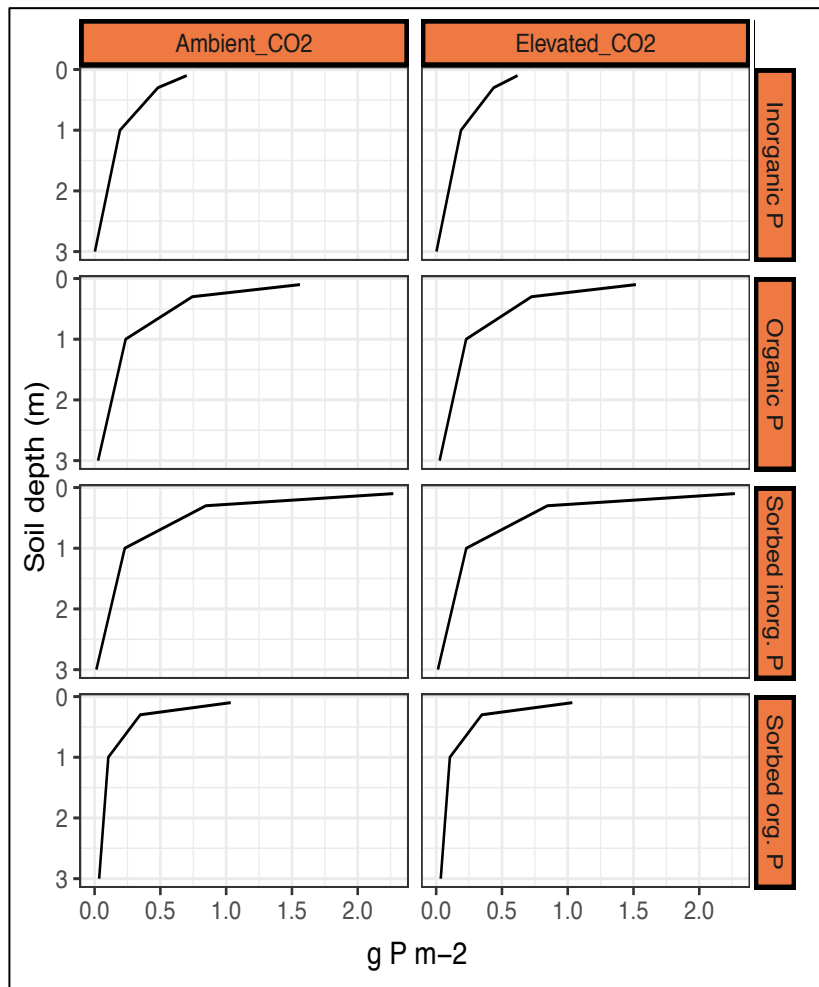


Fig. S3- Organic, inorganic and sorbed forms distribution within the soil layers using two model experiments.

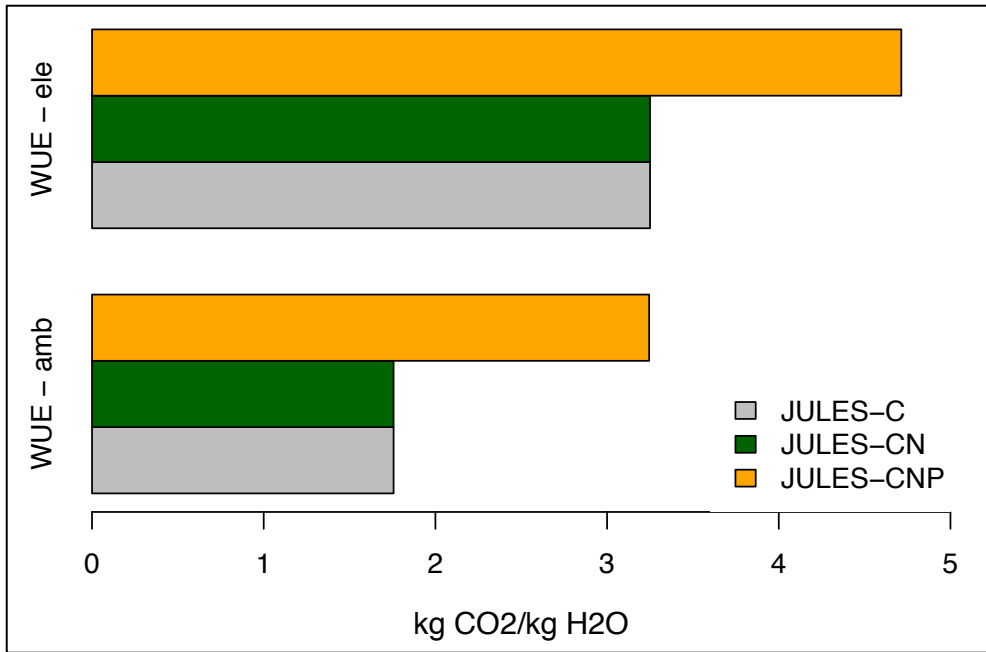


Fig. S4- Water use efficiency using three JULES versions under ambient and elevated CO₂ conditions.

Table S1. C pools and fluxes for 1st and 15-year responses using CNP models by Fleischer *et al.*, (2019)

		GPP	NPP	CUE	Leaf C	Root C	Wood C
1st year	min:	6.7	3.7	-12.3	0.0	0.4	0.0
	max:	32.1	51.2	16.8	2.6	29.9	1.1
	Avg.	19.9	23.0	2.5	1.0	6.0	0.2
15-year	min:	3.3	2.2	-13.0	-1.9	0.7	0.4
	max:	21.1	23.0	1.9	10.0	34.8	17.0
	Avg.	11.7	9.3	-2.0	4.1	11.5	5.8