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*Supplement of*

**CO<sub>2</sub> and CH<sub>4</sub> budgets and global warming potential modifications in *Sphagnum*-dominated peat mesocosms invaded by *Molinia caerulea***

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## Supplementary materials

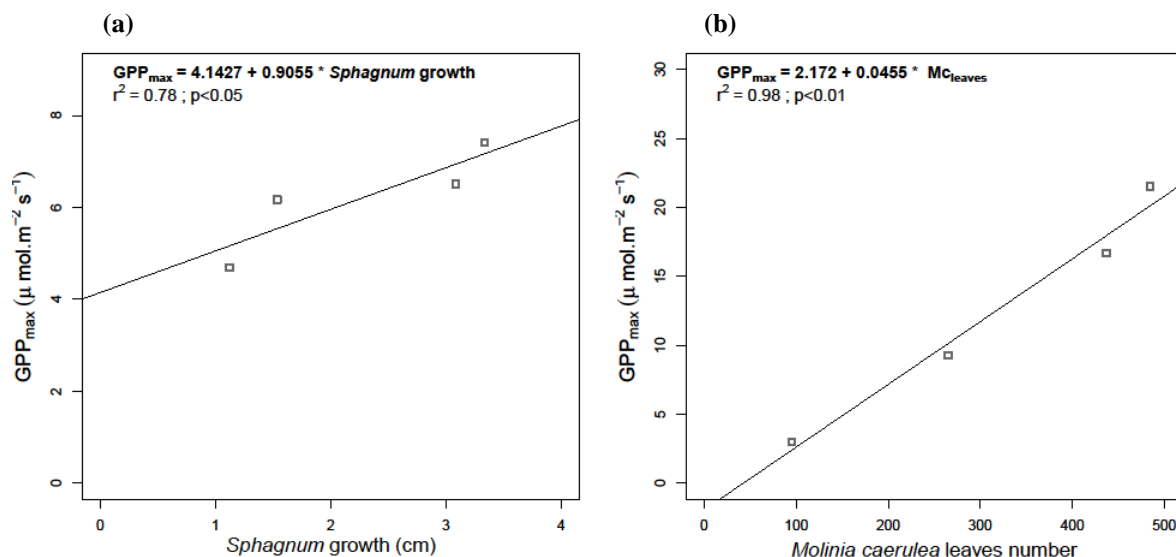


Figure S1: Linear relationship between the Gross Primary Production maximum (GPPmax) calculated with the photosynthesis-irradiance curve and *Sphagnum* growth (a) and the number of *Molinia caerulea* leaves (b).

- 5 Table S1: Linear regression coefficient of determination ( $r^2$ ) between Ecosystem Respiration (ER), Gross Primary Production (GPP) and methane emissions ( $CH_4$ ) measurements with air ( $T_a$ ) and soil temperature ( $T_s$ ) at 5 and 20 cm depth, water table level (WTL), photosynthetic photon flux density (PPFD) and the number of *Molinia caerulea* leaves (N=52). The number in bold is the highest determination coefficient for each variable in *Sphagnum* and *Sphagnum* + *Molinia* plots. Significance levels of correlation are expressed as  $-/+p < 0.05$ ,  $-/+p < 0.01$ ,  $---/+++p < 0.001$ .  $-/+$  represents a negative or positive relationship, respectively.
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	Determination coefficient ( $r^2$ )					
	<i>Sphagnum</i>			<i>Sphagnum</i> + <i>Molinia</i>		
	ER	GPP	$CH_4$	ER	GPP	$CH_4$
$T_a$	<b>0.73</b> <sup>+++</sup>	<b>0.31</b> <sup>--</sup>	0	<b>0.51</b> <sup>+++</sup>	0.16 <sup>--</sup>	0.09 <sup>+</sup>
$T_s$ at 5 cm	0.65 <sup>+++</sup>	0.19 <sup>--</sup>	0.25 <sup>+++</sup>	0.39 <sup>+++</sup>	0.15 <sup>--</sup>	0.62 <sup>+++</sup>
$T_s$ at 20 cm	0.47 <sup>+++</sup>	0.18 <sup>--</sup>	0.18 <sup>++</sup>	0.40 <sup>+++</sup>	0.28 <sup>--</sup>	<b>0.73</b> <sup>+++</sup>
WTL	0.55 <sup>--</sup>	0.12 <sup>+</sup>	<b>0.47</b> <sup>--</sup>	0.28 <sup>---</sup>	0.11 <sup>+</sup>	0.12 <sup>--</sup>
PPFD	0.48 <sup>+++</sup>	0.28 <sup>---</sup>	0.15 <sup>++</sup>	0.28 <sup>+++</sup>	0.06	0.31 <sup>+++</sup>
<i>Molinia caerulea</i> leaves	NA	NA	NA	0.44 <sup>+++</sup>	<b>0.80</b> <sup>---</sup>	0.08 <sup>+</sup>