

**Plant-soil feedbacks: a comparative study on the relative importance of soil-feedbacks in the greenhouse vs. field**

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## Online Resource 1: Electronic Supplementary Material (ESM)

**Fig. S1** Schematic figure for the description of direct plant-soil feedback (PSF) calculation. Overall, direct PSFs were calculated by using log biomass ratios of “home vs. away biomass” (according to Petermann et al. 2008), where “home biomass” is the biomass production of a given species on its own soils, and “away biomass” is the biomass production of the same species on soil of another species. For example: to obtain the PSF of species A from a given species B, all possible combinations of “home vs. away” contrasts for plots/pots were calculated. First, average PSFs of species A from species B per plot/pot were calculated (Eq. 1). Afterwards these plot/pot specific PSFs were averaged (Eq. 2) to obtain the overall PSF of species A from species B.

		Biomass species A on soil of species B (away)												
		B 1	B 2	B 3	. . . . .	B 10	(i = 10)							
Biomass species A on soil of species A (home)	A 1	$\log\left(\frac{\text{home}_{A1}}{\text{away}_{B1}}\right)$	. . . . .				$\log\left(\frac{\text{home}_{A1}}{\text{away}_{B10}}\right)$	PSF of species A from species B on site1	$PSF_{A1} = \frac{1}{n} \sum_{i=1}^n \log\left(\frac{\text{home}_{A1}}{\text{away}_{B i}}\right)$					
	A 2	.					.							
	A 3	.					.							
	.	.					.							
	.	.					.							
	.	.					.							
	.	.					.							
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	.	.					.							
	.	.					.							
A 10	.	$\log\left(\frac{\text{home}_{A10}}{\text{away}_{B1}}\right)$	. . . . .				$\log\left(\frac{\text{home}_{A10}}{\text{away}_{B10}}\right)$	PSF of species A from species B on site10	$PSF_{A10} = \frac{1}{n} \sum_{i=1}^n \log\left(\frac{\text{home}_{A10}}{\text{away}_{B i}}\right)$					
(j = 10)												Overall PSF of species A from species B	$\overline{PSF}_{A on B} = \frac{1}{n} \sum_{i=1}^n PSF_{A j}$	(Eq. 2)

**Table S1** Vegetation cover of grasses, herbs, legumes as well as the total cover at the surrounding 1 m<sup>2</sup> of *Arrhenatherum elatius*, *Holcus lanatus*, *Anthoxanthum odoratum* and non-specific community plots. *P*-values represent results of an ANOVA that tests for differences in vegetation cover between species-specific and non-specific community plot-surrounding patches. Within columns different letters indicate significant differences (*P* < 0.05) between patches after a Tukey HSD test. Data represent means ± SE (n = 10).

Soil	Grasses	Herbs	Legumes	Total
<i>A. elatius</i>	70.0 ± 3.65 <b>a</b>	3.1 ± 0.48 <b>b</b>	1.1 ± 0.26 <b>ab</b>	74.2 ± 3.59 <b>a</b>
<i>H. lanatus</i>	68.0 ± 2.00 <b>a</b>	4.2 ± 0.89 <b>b</b>	0.5 ± 0.09 <b>b</b>	72.7 ± 2.36 <b>a</b>
<i>A. odoratum</i>	60.5 ± 3.11 <b>a</b>	4.8 ± 0.91 <b>b</b>	1.1 ± 0.19 <b>ab</b>	66.5 ± 2.82 <b>ab</b>
Non-specific	48.5 ± 3.17 <b>b</b>	8.8 ± 0.51 <b>a</b>	2.3 ± 0.51 <b>a</b>	59.5 ± 2.67 <b>b</b>
<i>P</i>	< 0.001	0.002	0.003	0.004