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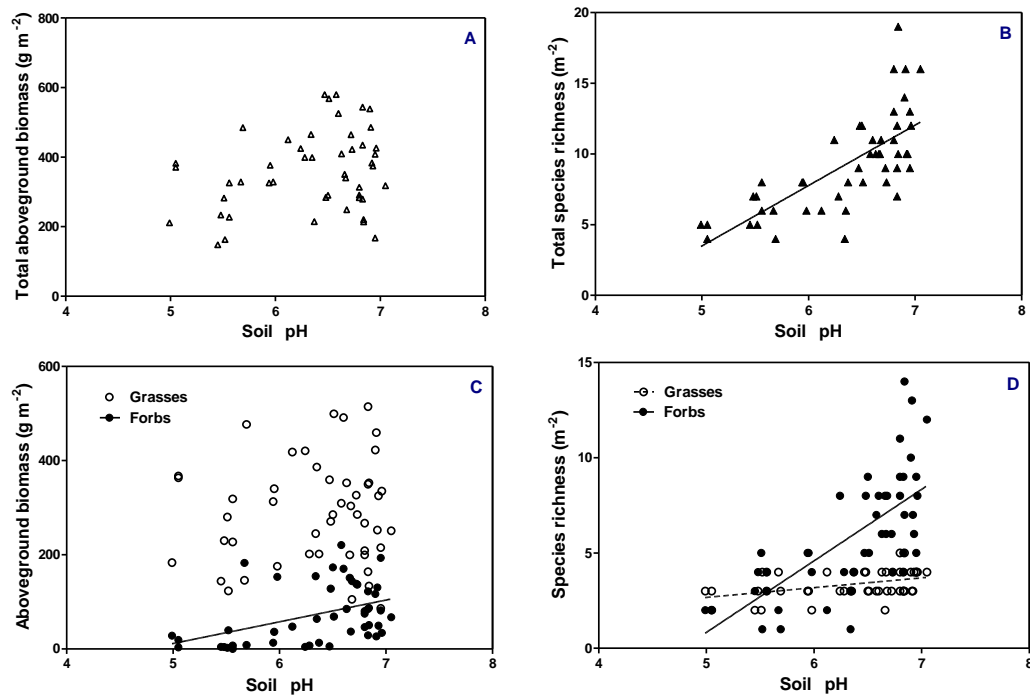
*Supplement of*

## **Disruption of metal ion homeostasis in soils is associated with nitrogen deposition-induced species loss in an Inner Mongolia steppe**

**Q.-Y. Tian et al.**

*Correspondence to:* W.-H. Zhang (whzhang@ibcas.ac.cn)

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**Fig. S1** Linear regression between soil pH (0-10 cm) and total aboveground biomass (A), total species richness (B) ( $r^2=0.53$ ,  $P<0.0001$ ), aboveground biomass (C) (forbs,  $r^2=0.19$ ,  $P=0.0019$ ) and species richness (D) (grasses,  $r^2=0.17$ ,  $P=0.0034$ ; forbs,  $r^2=0.49$ ,  $P<0.0001$ ).

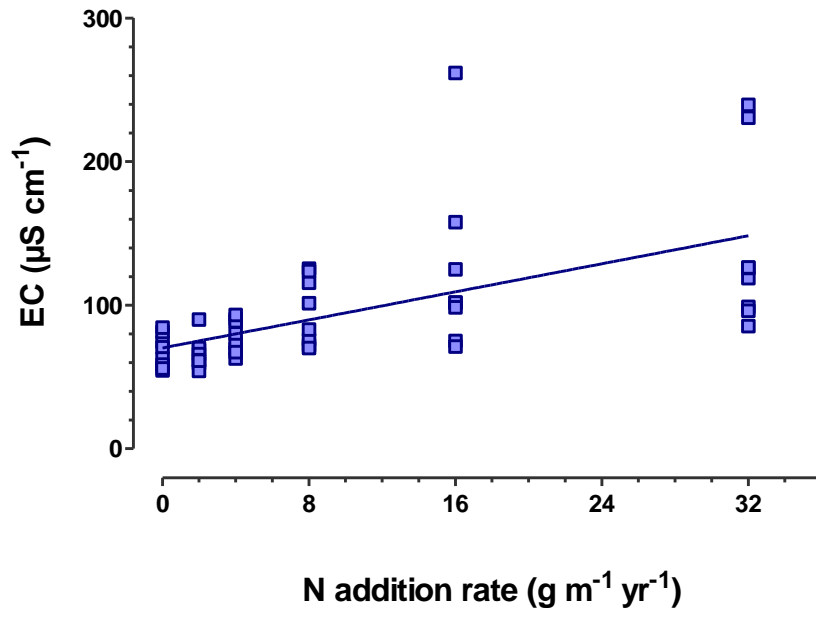


Fig. S2. Effect of N addition on soil electrical conductivity (EC) ( $r^2=0.36$ ,  $P<0.0001$ ).

**Table S1** Pear correlation coefficients ( $r$ ) between ion concentrations and N addition rate and soil pH ( $r>0$  indicates positive correlations,  $r<0$  indicates negative correlations.). \* , \*\* and \*\*\* indicate the correlation is significant at  $P<0.05$ ,  $P<0.01$ , and  $P<0.001$ , respectively.

<b>Dependent variables</b>	<b>Inorganic N</b>	<b>Olsen-P</b>	<b>Ca<sup>2+</sup></b>	<b>Mg<sup>2+</sup></b>	<b>K<sup>+</sup></b>	<b>Fe<sup>3+</sup></b>	<b>Mn<sup>2+</sup></b>	<b>Cu<sup>2+</sup></b>	<b>Zn<sup>2+</sup></b>	<b>Al<sup>3+</sup></b>
<b>N addition</b>	0.86 ***	0.69 ***	-0.46 **	-0.31 *	-0. 11	0.92 ***	0.94 ***	0.90 ***	0.06	0.74 ***
<b>Soil pH</b>	-0.77 ***	-0.61 ***	0.46 ***	0.35 *	0.0 6	-0.85 ***	-0.9** *	-0.85 ***	-0.03	-0.73 ***