**Supporting Information for**

**Peatland degradation increased biodiversity and polyphenols accumulation**

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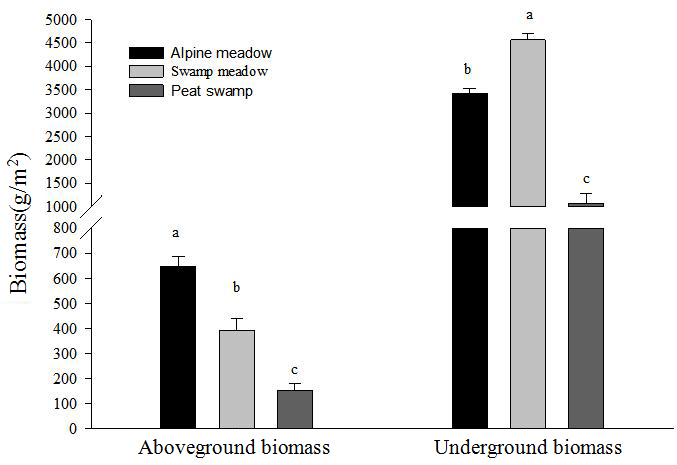
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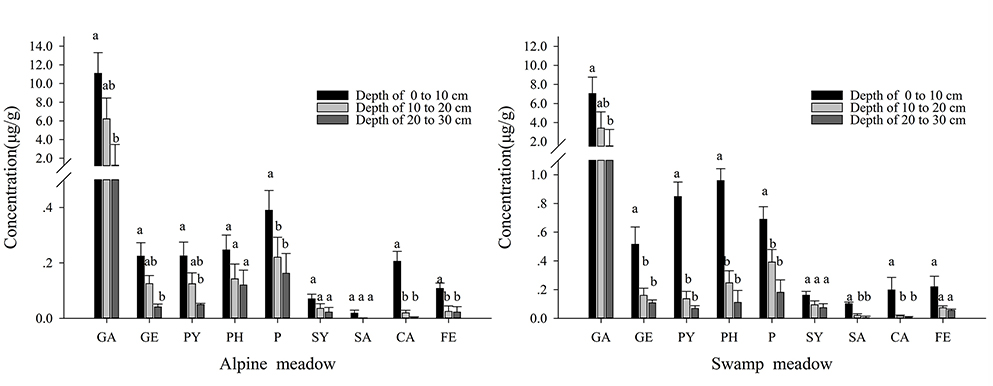
Figures S1 to S5

**Introduction**

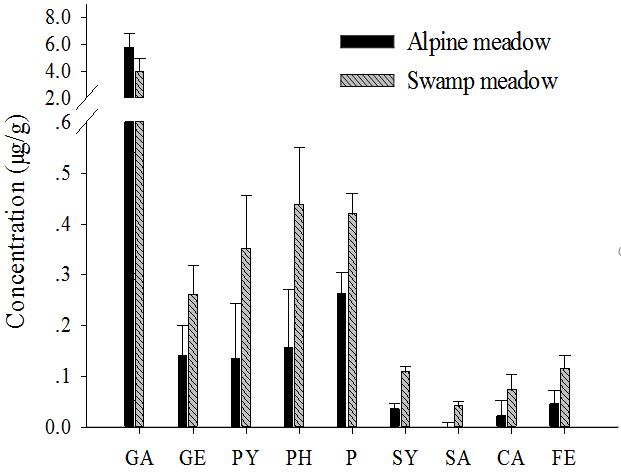
**The support information provides the same charts and tables as in this article, as well as the data to generate the charts.**

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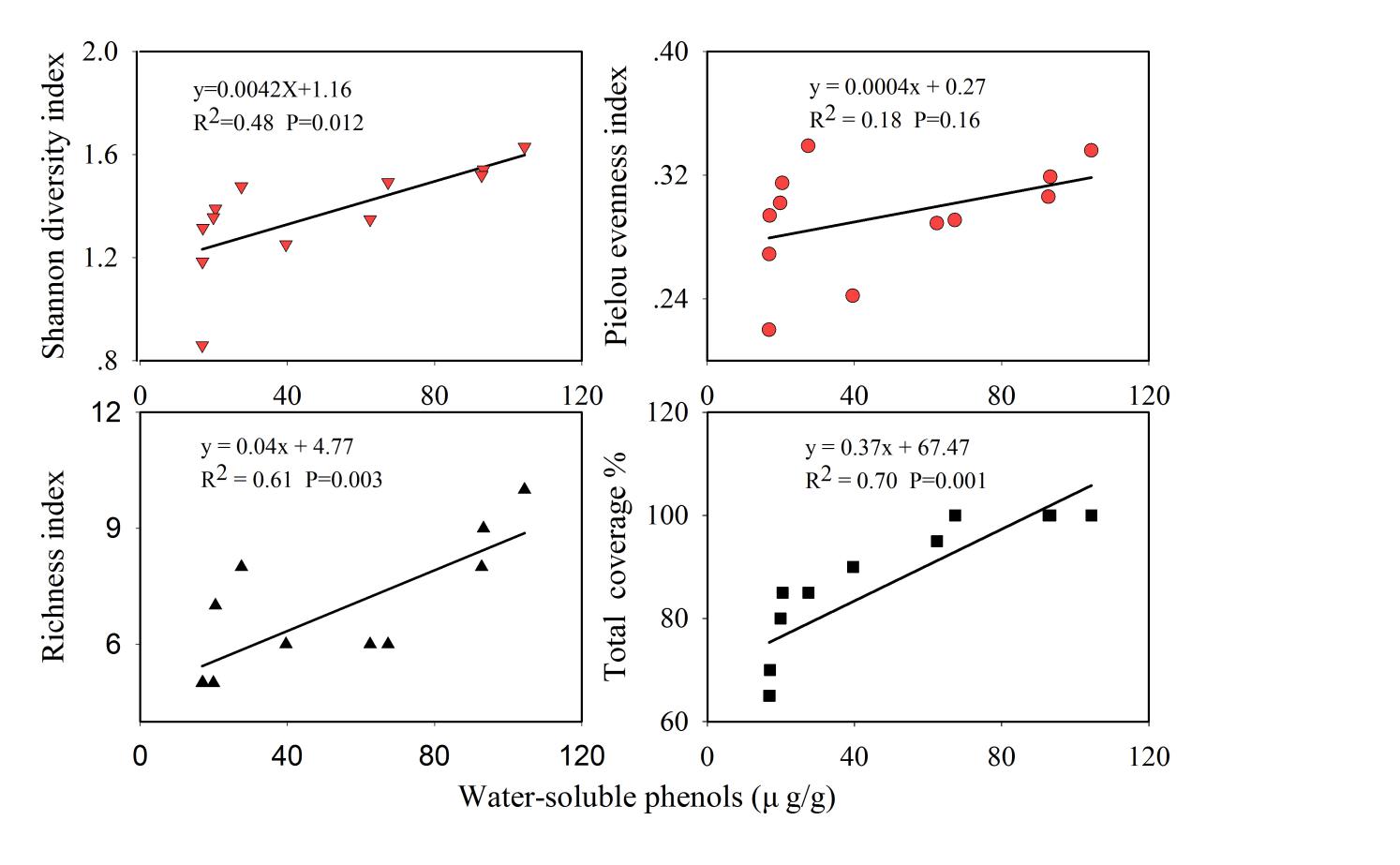
**Fig 1** **Changes in aboveground and belowground biomass in different stages of peatland degradation (Different letters indicate significant differences, P<0.05)**



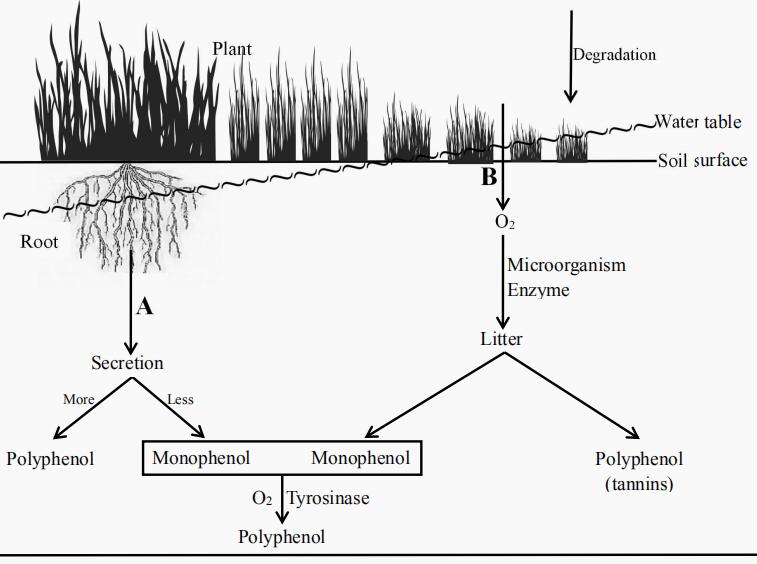
**Fig 2 Nine main phenolic compounds in peatland varied with soil depth (different letters indicatesignificant difference between different soil depth, P < 0.05)** Note: gallic acid (**GA**), gentisic acid (**GE**), catechin (**PY**), p-hydroxybenzoic acid (**PH**), 4-coumaric acid (**P**), syringic acid (**SY**), salicylic acid (**SA**), caffeic acid (**CA**), ferulic acid (**FE**).

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**Fig 3 The concentration of nine phenolic compounds in alpine meadow and swamp meadow.** Note:gallic acid (**GA**), gentisic acid (**GE**), catechin (**PY**), p-hydroxybenzoic acid (**PH**), 4-coumaric acid (**P**), syringic acid (**SY**), salicylic acid (**SA**), caffeic acid (**CA**), ferulic acid (**FE**).



**Fig 4 Regression analysis of the concentration of water-soluble phenols and vegetation coverage, diversity, richness and evenness index**

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**Fig 5 Water level, oxygen and vegetation affect the accumulation of phenols in peatland** Note: In the process of peatland degradation, A: Decreasing water level promoting vascular plant growth and plant diversity. Root secretion increased, producing a large number of water-soluble phenols (mainly polyphenols). B: The oxygen-enriched environment increases the activity of microorganisms and enzymes that decompose plant litter into polyphenol (tannins) and Monophenols. Eventually, monophenols are converted by tyrosinase into polyphenols.