

Appendices – Supplementary files

Appendix S1 – Dataset: The dataset is attached as a supplementary Excel file.

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Appendix S2 – Soil depth effect on soil P composition

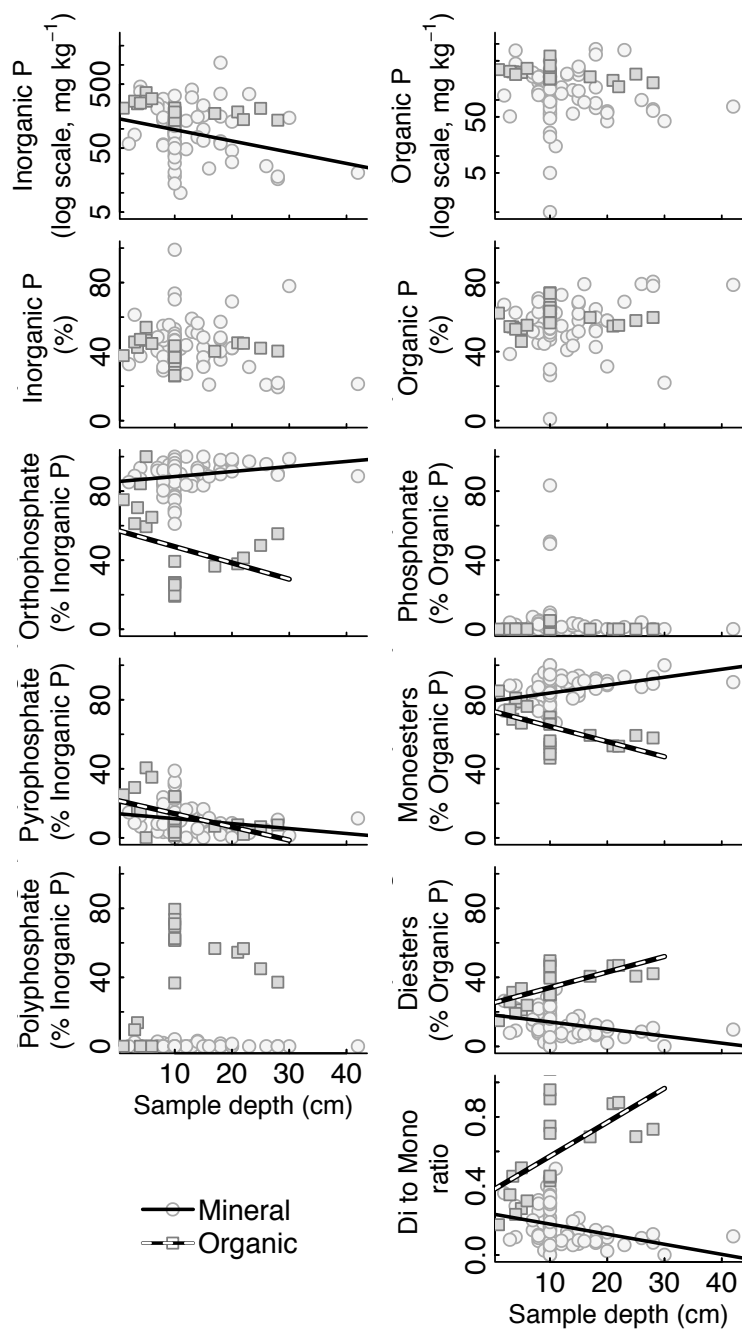
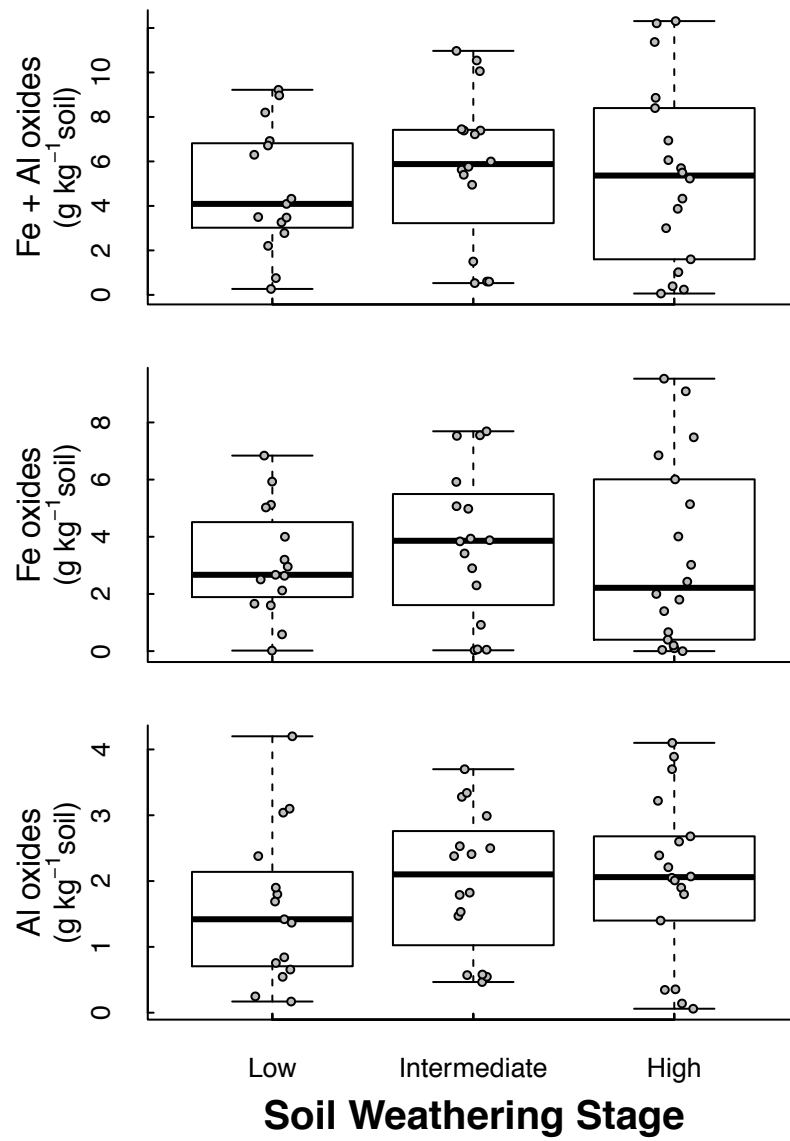


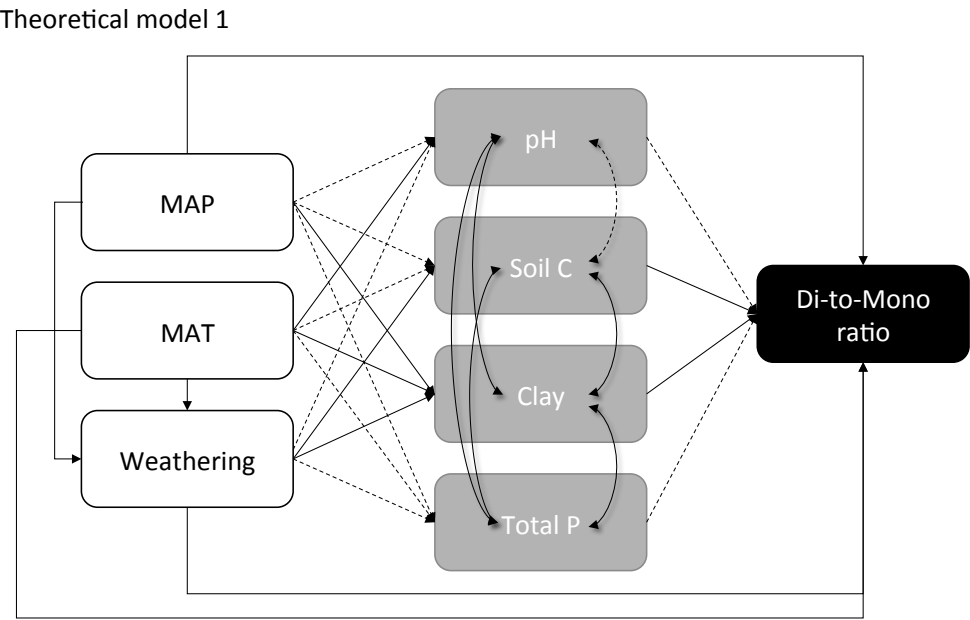
Figure 2. Relationship between edaphic properties and soil inorganic phosphorus (P) composition from soil mineral and organic layers on terrestrial natural ecosystems (n = 80 mineral layer and n = 20 organic layer).



5 Figure S3. Soil weathering stage relationship with soil poorly crystalline Al and Fe ($n = 49$) on terrestrial natural ecosystems. For all three panels $p > 0.1$.

Appendix S4 – Models tested to explore the interdependences between edaphic and climatic variables (path analysis)

We expected some directionalities in the relationships, based on the literature (Figures S4.1 and S4.3).



5 **Figure S4.1 Theoretical model 1 set to explore the interdependences between edaphic and climatic variables (path analysis).**

Final model 1

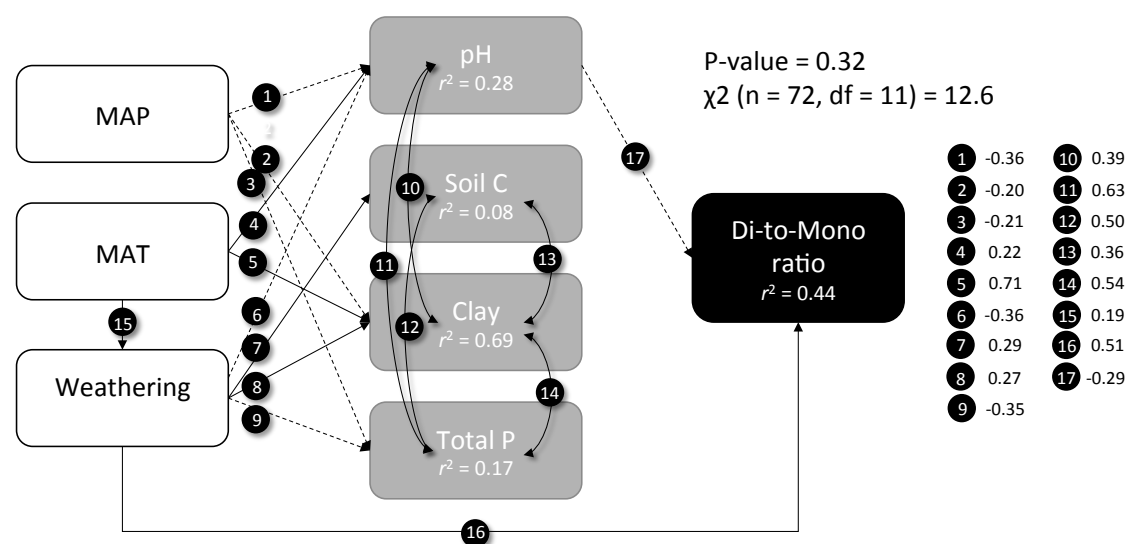


Figure S4.2 Final model 1 set to explore the interdependences between edaphic and climatic variables (path analysis).

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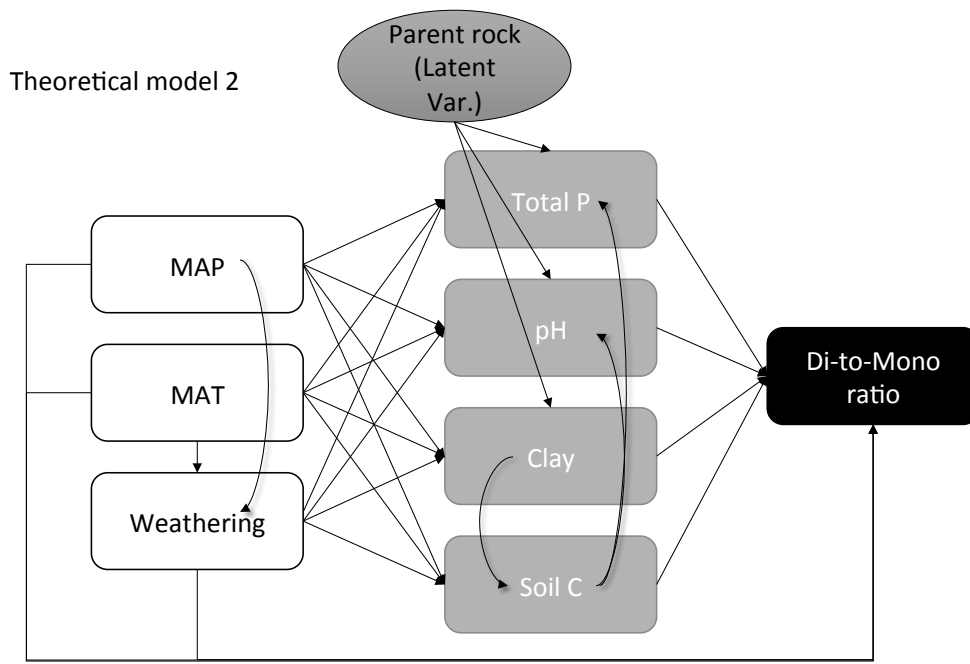


Figure S4.3 Theoretical model 2 set to explore the interdependences between edaphic and climatic variables (path analysis).

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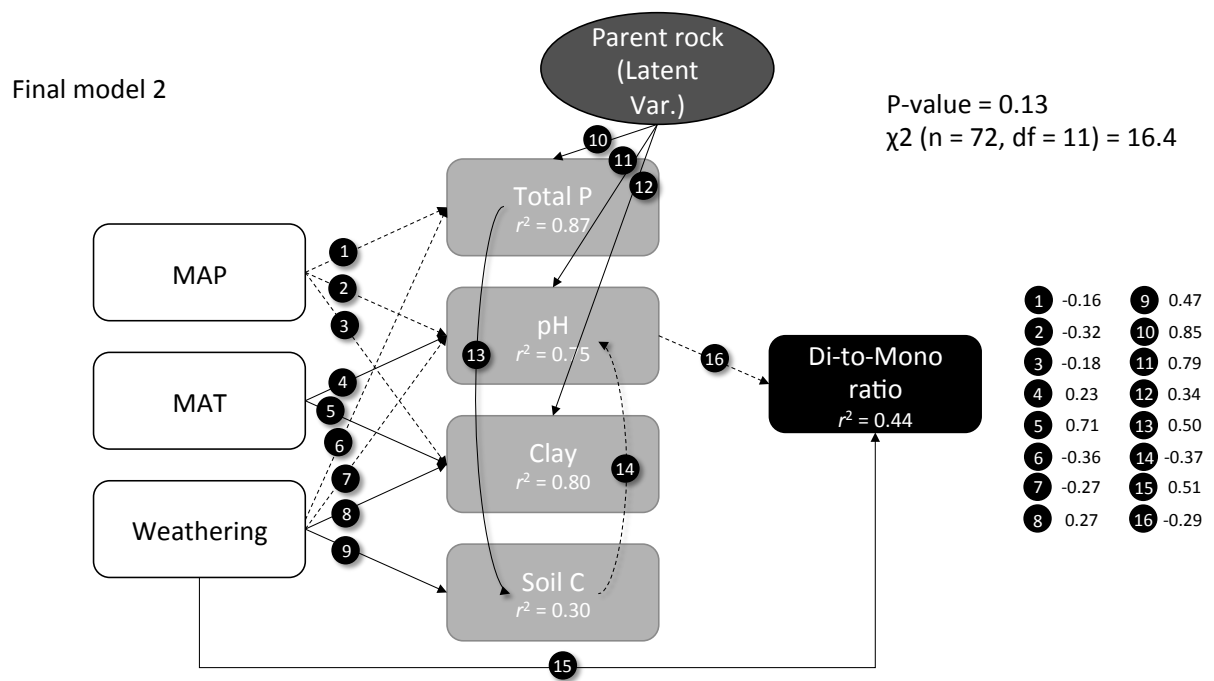


Figure S4.4 Final model 2 set to explore the interdependences between edaphic and climatic variables (path analysis).

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```
> anova(fit.path1,fit.path2)
```

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Chi Square Difference Test
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	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
fit.path1	11	627.25	681.89	12.677			
fit.path2	11	626.99	677.08	16.414	3.7376	0	< 2.2e-16 *

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Final model 2 seems the most appropriate

Figure S4.5 Comparison between final models 1 and 2 that were set to explore the interdependences between edaphic and climatic variables (path analysis).