

1 **Supporting Materials**

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3 **Increases in aridity lead to drastic shifts in the assembly of dryland complex**  
4 **microbial networks**

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13 **This PDF file includes:**

14 Figures S1-S3

15 Tables S1-S3

16

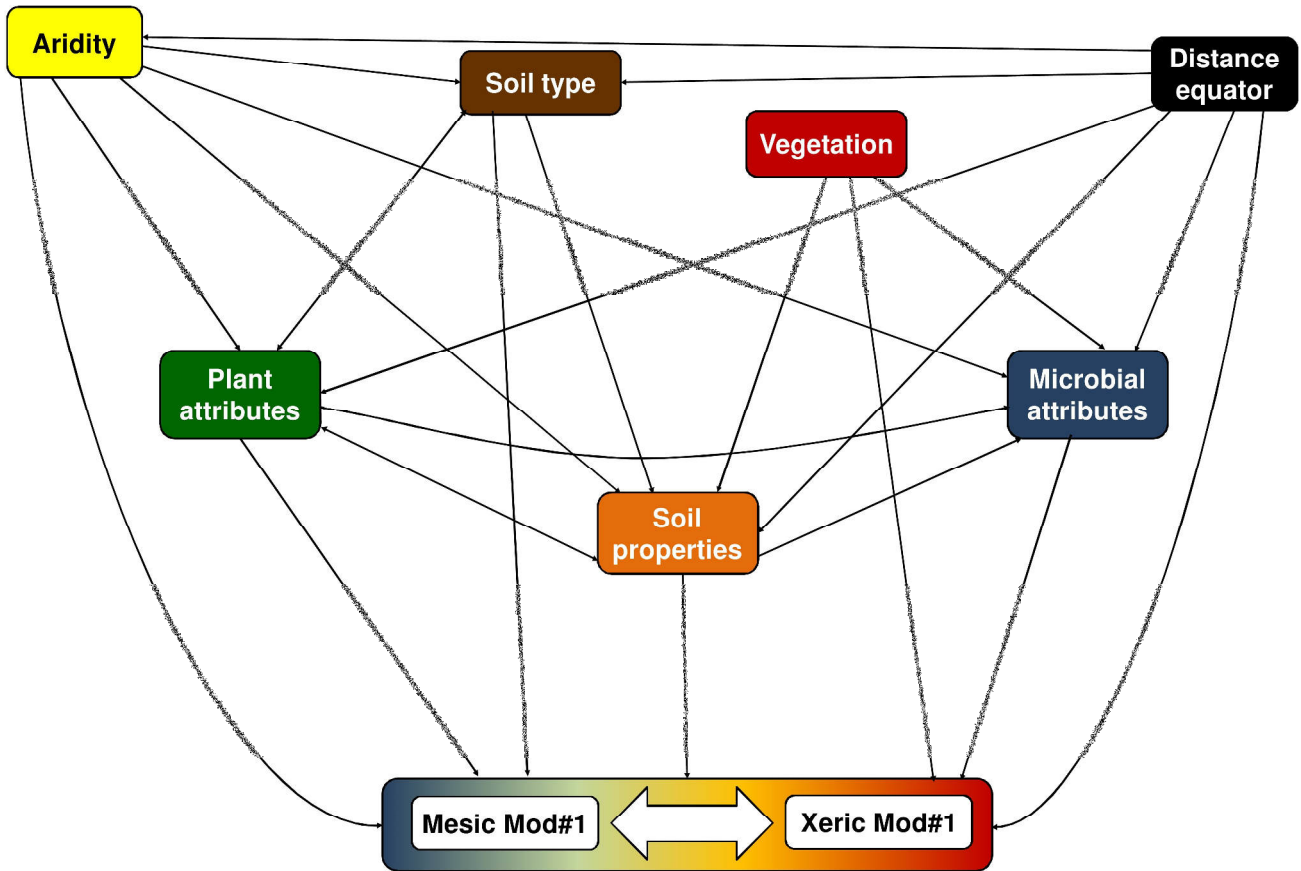
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24 **Figure S1.** A priori structural equation model including the direct and indirect effects of distance from  
 25 equator, aridity, soil types, soil properties, within-plot vegetation type (trees, shrubs and grasses), plant  
 26 community attributes (cover and richness) and microbial attributes (abundance and fungal: bacterial  
 27 ratio) on the relative abundance of Mesic Module #1 and Xeric Module #2.

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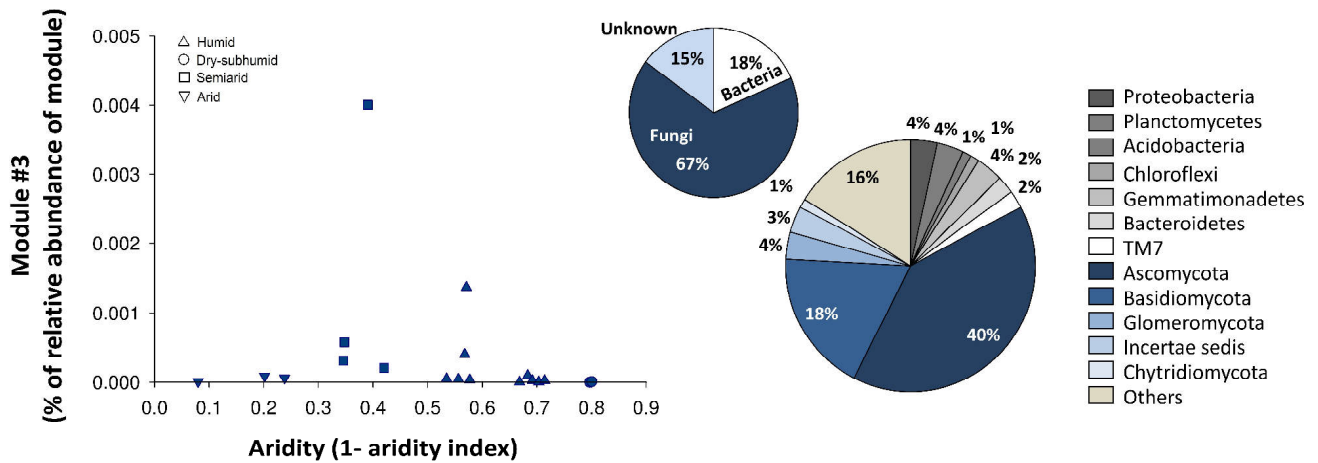
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39 **Figure S2.** Relationship between aridity and the relative abundance of Module #3 at the site level (i.e.  
 40 standardized by the relative cover of different microhabitats). Regressions at a sample level are  
 41 available in Fig. S3. Pie charts at the right of the figure represent the relative proportion of OTUs from  
 42 major bacterial and fungal taxa in this module.

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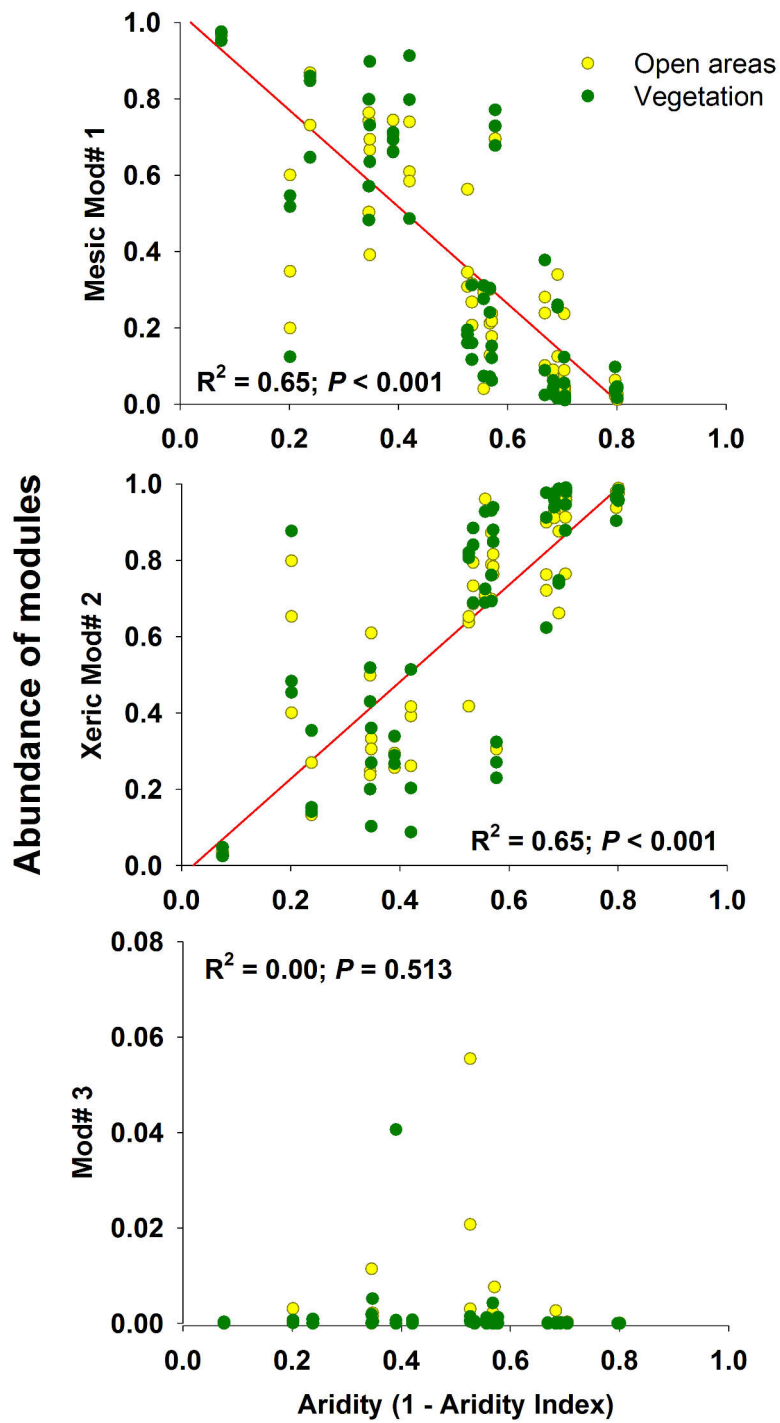
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61 **Figure S3.** Relationships between aridity and the relative abundance of microbial modules at the  
 62 sample level.

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65 **Table S1.** Spearman correlations (*P* values) between relative abundance of Mesic Module #1 and the  
66 concentration of available soil carbon, nitrogen and phosphorus variables and enzyme activities. *P*  
67 values below 0.05 are in bold.

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	<b>Mesic Module # 1</b>
<b>Available carbon</b>	0.273 (0.003)
<b>Dissolved inorganic nitrogen</b>	0.158 (0.085)
<b><math>\alpha</math>-Glucosidase activity</b>	-0.032 (0.726)
<b>Phosphatase activity</b>	0.288 (0.001)
<b>Chitinase activity</b>	-0.003 (0.978)
<b>Annual Plant productivity (2014) (NDVI)</b>	0.528 (<0.001)
<b>Plant productivity in March 2014 (NDVI)</b>	0.524 (<0.001)

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88 **Table S2.** Correlation (Spearman) between aridity and the relative abundance of microbial OTUs  
89 within Mesic Module #1 and Xeric Module #2. We only included in this table negative significant  
90 correlations for Mesic Module #1 and positive significant correlations for Xeric Module #2 ( $P < 0.05$ ).  
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92 *Table S2 is available online as a Separate .PDF file under the Supporting Information for this article.*  
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119 **Table S3.** Spearman correlations (*P* values) between aridity, the relative abundance of Mesic Modules  
120 #1 and Xeric Module #2 at a site-scale, and the cover of trees (n = 20).

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	<b>Trees</b>	<b>Aridity</b>	<b>Mesic Module #1</b>
<b>Aridity</b>	-0.804 (<0.001)		
<b>Mesic Module #1</b>	0.675 (0.001)	-0.839 (<0.001)	
<b>Xeric Module #2</b>	-0.675 (0.001)	0.839 (<0.001)	-1.000 (<0.001)

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