Ecography

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Supplementary material

Appendix 1.

Table A1. Comparison of the species richness of Fynbos (Ff), Transition (Tr) and Forest (Fo) communities at the Orange Kloof and Blinkwater study sites. On the diagonal (grey background) is the observed richness for each community, above the diagonal is the richness common to pairs of communities (shared richness) and below the diagonal is the total richness for pooled pairs of communities. In total, Blinkwater had 67 species and Orange Kloof had 94 in the plots sampled. The percentage of species at each site within a vegetation type is shown. Sørensen's dissimilarity coefficient is an index of turnover in species richness between two vegetation types. If the number of species shared between two sites is denoted as *a* and the numbers of unique species (not shared) as *b* and *c*, then Sørensen's coefficient = $(b + c) / (2a + b + c)$ (Oksanen et al. 2016).

		Species number			Species (%)			Sørensen	
Site	Vegetation	Ff	Tr	Fo	Ff	Tr	Fo	Ff	Tr
Orange Kloof	Ff	47	25	1	50	27	1		
	Tr	75	53	6	80	56	6	0.50	
	Fo	66	67	20	70	71	21	0.97	0.84
Blinkwater	Ff	27	9	0	40	13	0		
	Tr	48	30	6	72	45	9	0.68	
	Fo	39	36	12	58	54	18	1	0.71

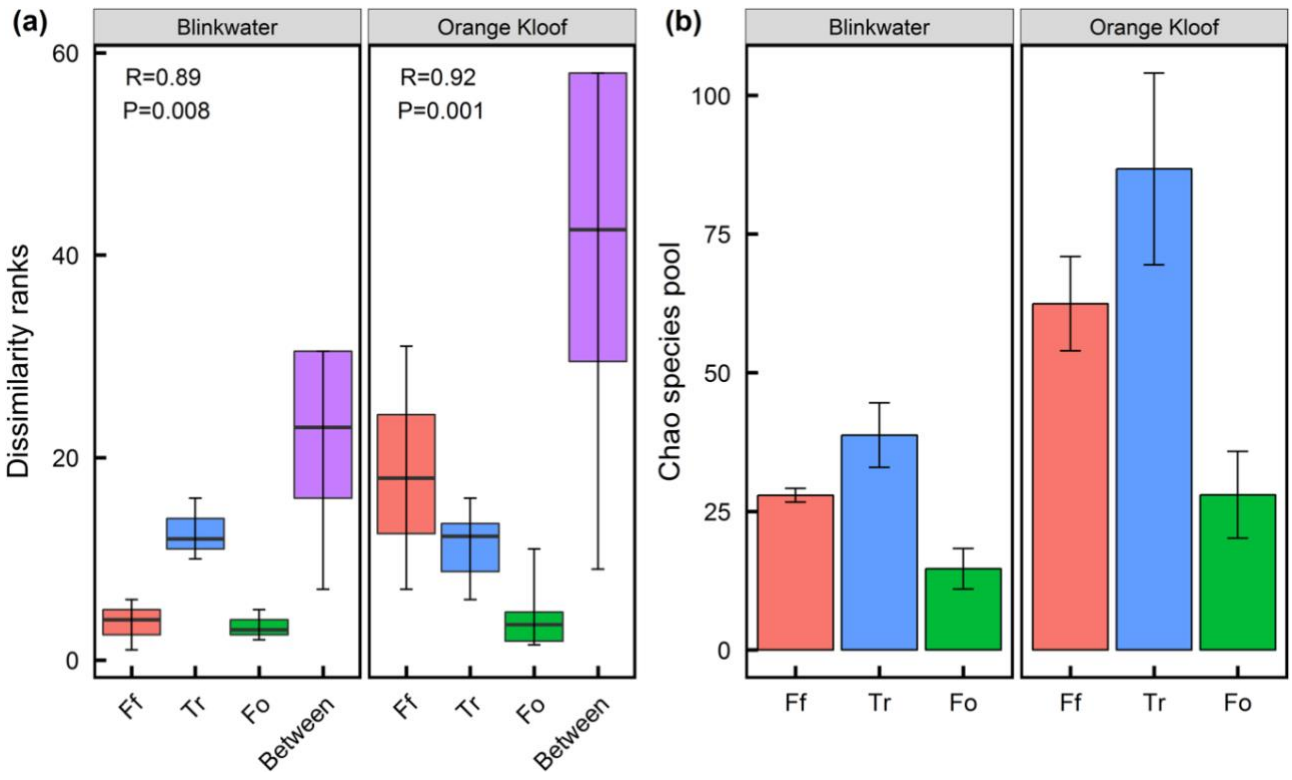

Figure A1. Analysis of (a) species (dis)similarities and (b) the Chao estimates of species pool size. Dissimilarities were calculated using analysis of similarities (ANOSIM) showing the compositional differences within vegetation types (Fynbos = Ff, Transition = Tr, Forest = Fo) compared with the dissimilarity between vegetation types ("Between"). The statistical significance of the R-value of the ANOSIM test is shown. Chao species pools represent the estimates of extrapolated species richness from species accumulation curves (Chao 1987, Chiu et al. 2014).

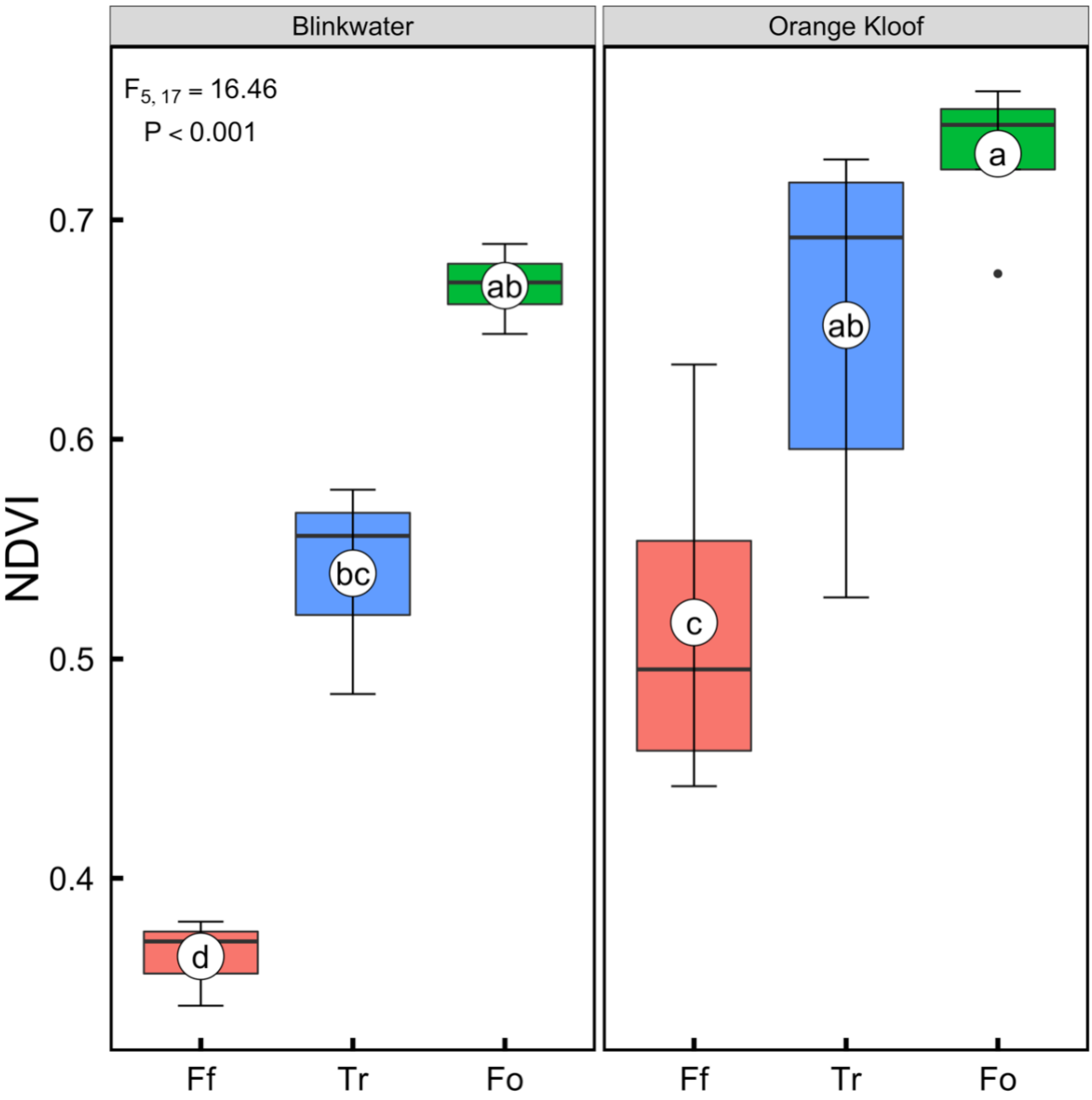

Figure A2. Variation in the upper-quartile of NDVI values between vegetation types (Fynbos = Ff, Transition = Tr, Forest = Fo) at each study site. The boxes and horizontal lines represent the first and third quartiles and the medians, respectively. The whisker represents 1.5 x the interquartile range and outliers above/below are shown as points. Circles represent the mean with letters indicating the significant interaction between vegetation types and sites from a one-way ANOVA, for which the F value and P values is given.

Table A2. Comparison of the mean ± SE of texture components of the soils for the Blinkwater and Orange Kloof sites in Fynbos (Ff), Transition (Tr) and Forest (Fo) vegetation types. Different letters indicate significant differences between the logit transform of the texture class determined using a two-way ANOVA with the sites and vegetation types as factors and post-hoc Tukey tests ($P < 0.05$). Each texture class was analysed separately.

	Blinkwater			Orange Kloof		
Texture	Ff	Tr	Fo	Ff	Tr	Fo
Clay	0.97±0.09a	0.75±0.06a	0.79±0.11a	1.42±0.21a	1.7±0.36a	1±0.24a
Silt	9.3±0.7a	12.4±1.3a	12.6±1.8a	17.6±2a	20.4±3.2a	20.5±2.9a
Very fine sand	5.4±0.5ab	4.2±0.3b	4.3±0.6b	10.6±1.9a	9.1±1a	8.4±1.1ab
Fine sand	21±0.6a	14.7±0.7a	14.8±0.6a	24±1.8a	18.4±1.8a	16.8±1.2a
Medium sand	39.8±0.7a	37.6±0.7a	37.2±1a	32.4±2.6a	32±2.3a	33.7±2.4a
Coarse sand	23.1±0.8a	28.4±0.9a	28.1±1.6a	13.9±2.8b	17.9±1.6ab	18.8±1.9ab
Very coarse sand	0.56±0.12b	1.96±0.32a	2.12±0.4a	0.1±0.09b	0.38±0.12b	0.7±0.37b

Table A3. Comparison of the oxide composition (mg kg^{-1}) of granite and sandstone rock samples collected at Blinkwater ravine (mean ± SE, n = 3). The ratio of granite: sandstone is shown with the P values derived from Student's t tests.

Oxide/ Element	Granite	Sandstone	Granite/ Sandstone	P value
Al	27001 ± 7783	13947 ± 2874	1.9	0.136
P	4189 ± 2589	3980 ± 166	1.1	0.927
K	26265 ± 205	1830 ± 327	14.4	**0.000**
Ca	5780 ± 980	469 ± 58	12.3	**0.001**
Ti	1834 ± 68	453 ± 47	4	**0.000**
V	73 ± 8	15 ± 2	4.7	**0.000**
Cr	18 ± 5	13 ± 0	1.4	0.224
Mn	351 ± 34	90 ± 38	3.9	**0.004**
Fe	26192 ± 3521	12657 ± 4292	2.1	0.069
Ni	11 ± 1	4 ± 0	2.8	**0.001**
Cu	12 ± 1	4 ± 1	2.6	**0.004**
Zn	58 ± 4	24 ± 5	2.4	**0.004**
Se	0.067 ± 0.011	0.054 ± 0.002	1.2	0.254
Br	0.28 ± 0.04	0.12 ± 0	2.2	**0.005**
Rb	149.87 ± 19.25	3.12 ± 0.64	48	**0.000**
Sr	100 ± 19	15 ± 5	6.9	**0.004**
Y	23.49 ± 3.34	3.09 ± 1.37	7.6	**0.001**
Zr	145 ± 10	48 ± 5	3	**0.000**
Nb	6 ± 1	4 ± 0	1.5	0.076
Hg	206 ± 16	155 ± 4	1.3	**0.017**
Tl	2.69 ± 0.13	1.42 ± 0.12	1.9	**0.001**
Pb	47.44 ± 6.34	7.16 ± 1.44	6.6	**0.001**
Bi	2.07 ± 0.16	1.13 ± 0.05	1.8	**0.001**

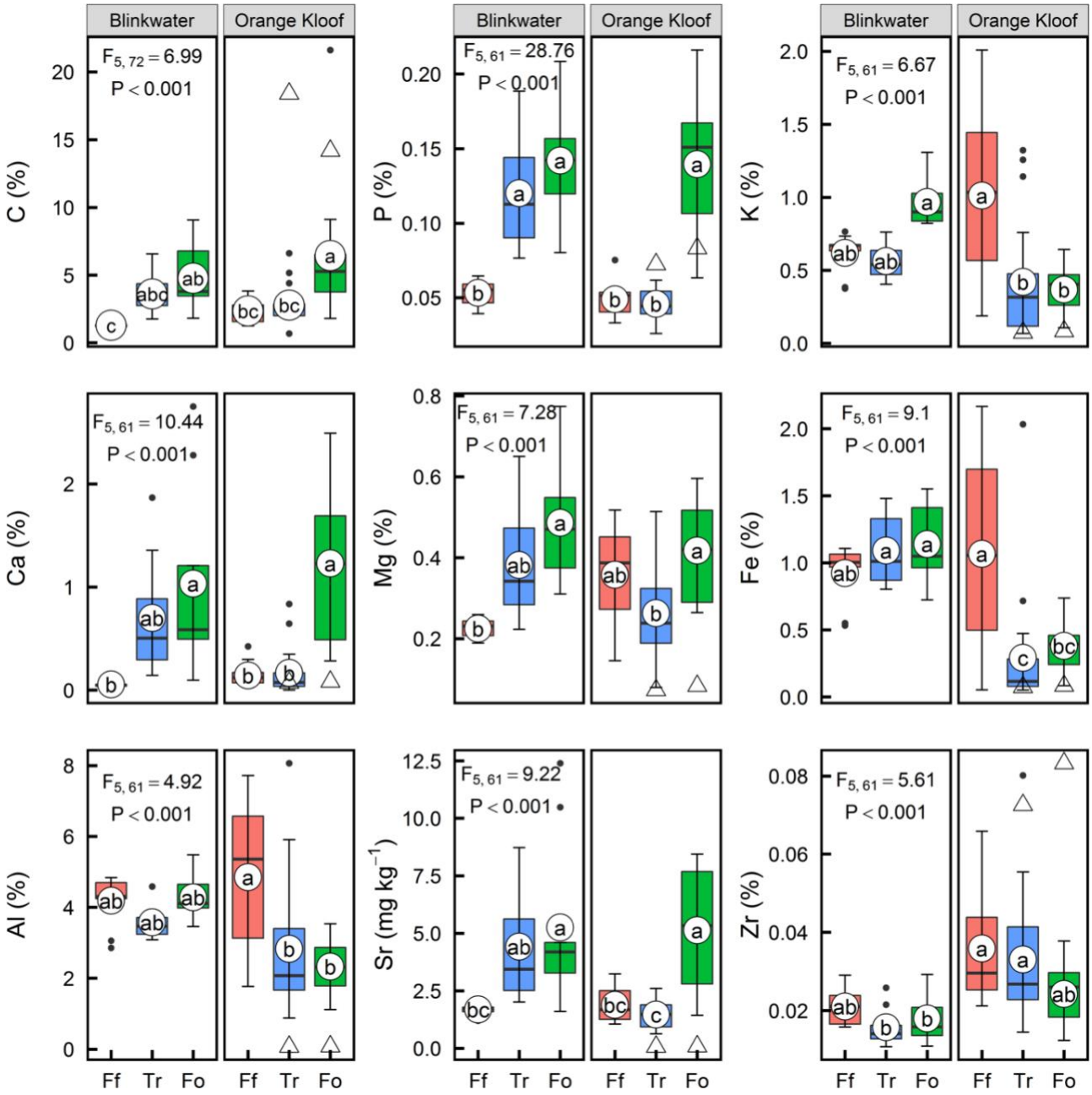

Figure A3. Variation in soil total elemental concentrations between vegetation types (Fynbos = Ff, Transition = Tr, Forest = Fo) at both study sites. The site on granitic-soil at Orange Kloof is represented by Δ. Other details as in Fig. A2.

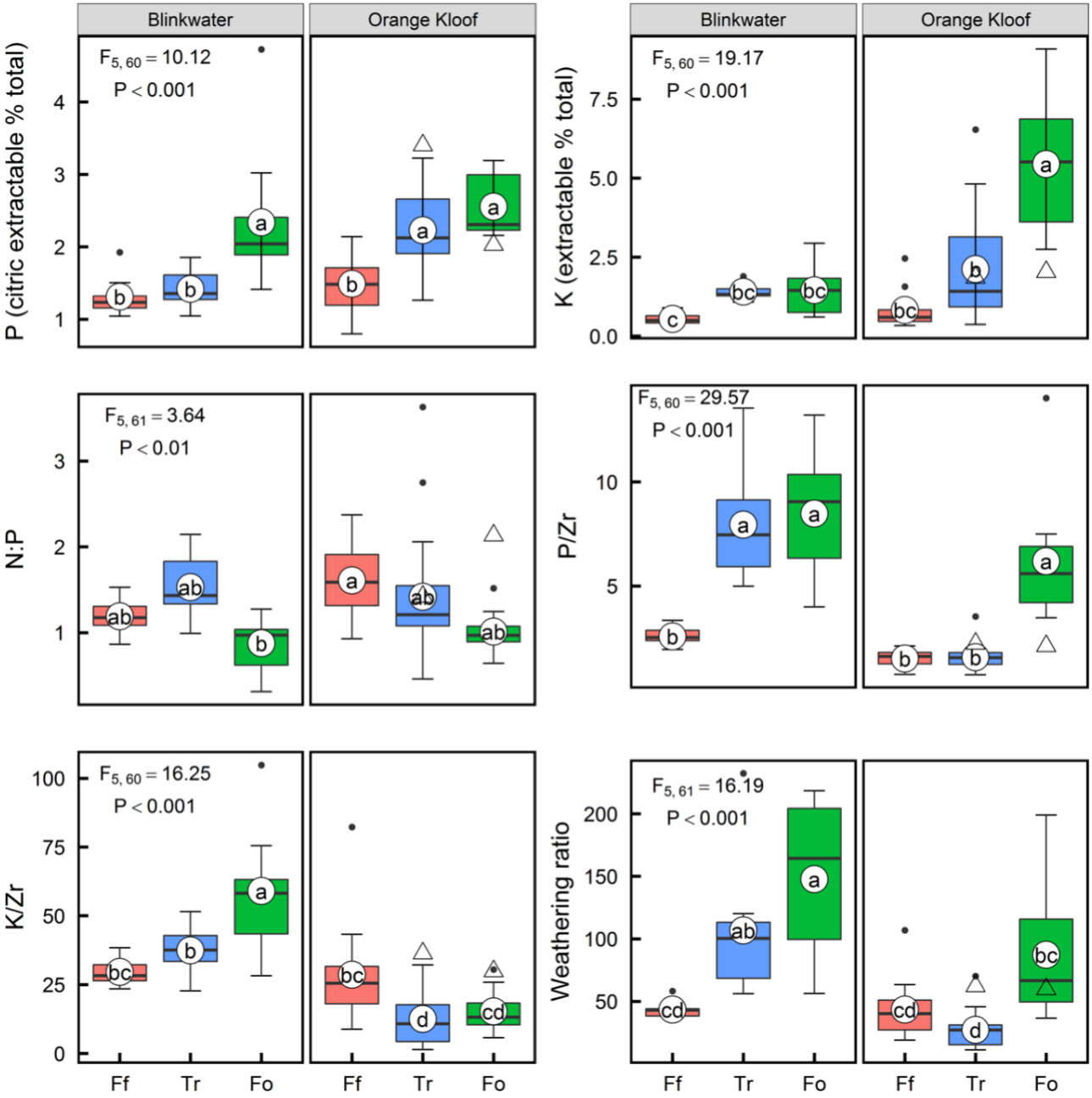

Figure A4. Variation in ratios of soil chemical characteristics between vegetation types (Fynbos = Ff, Transition = Tr, Forest = Fo) at both study sites. Citric acid extractable P and extractable K are expressed relative to total P and K determined using XRF analysis. Total N is expressed relative to total P (N:P). P:Zr, K:Zr and weathering ratios are all based on XRF elemental analyses. Other details as in Fig. A2.