

**Functional antagonism between nitrogen-fixing leguminous trees
and calcicole-drought-tolerant trees in the Cerrado**

doi: 10.1590/0102-33062016abb0380

Table S1. Correspondent models, intercepts, slopes (of explained variables), explicative variables, degrees of freedom (df), Log-likelihood (logLik), Akaike Information Criterion (AICc), delta (stepping scale for model selection < 2) and weight (proportion of explained variance) of Figures 1, 2 and Table 2 of the Generalized Linear Models for Al³⁺, NO³⁻, NH⁴⁺, pH, and pH variation (pH2009-2005) with interactions with Functional Groups – FG(LEG/DRY) and Year (2005/2009) related to Relative Basal Area – RBA. DRY means DRY RBA; LEG means LEG RBA; OTHER means OTHER RBA; NON means non-leguminous trees; NH⁴⁺, NO³⁻, Al³⁺, pH are soil attributes (see Materials and Methods); NRI means Net Relatedness Index; pH 2009-2005 means pH variation

| MODEL | INTERCEPT | SLOPE | WITHOUT INTERACTION | WITH INTERACTION | DF | LOGLIK | AICC | DELTA | WEIGHT |
|------------|-----------|----------------------------|----------------------------------|--------------------------------------|----|----------|--------|-------|--------|
| code | Intercept | RBA LEG/ OTHER | GROUP (LEG/ OTHER) | RBA*(GROUP) | df | logLik | AICc | delta | weight |
| 4 | 0.6955 | -0.8461 | + | | 4 | 47.952 | -87.4 | 0 | 0.655 |
| 8 | 0.6956 | -0.8470 | + | + | 5 | 47.952 | -85.2 | 2.24 | 0.213 |
| 2 | 0.7158 | -0.7749 | | | 3 | 45.258 | -84.2 | 3.20 | 0.132 |
| Model code | Intercept | NH ⁴⁺ | FG (DRY/LEG) | NH ⁴⁺ *FG (DRY/LEG) | df | logLik | AICc | delta | weight |
| 8 | 0.7519 | -5.709e-04 | + | + | 5 | 46.924 | -83.1 | 0 | 1 |
| 2 | 0.5360 | | + | | 3 | 33.404 | -60.5 | 22.60 | 0 |
| 4 | 0.5458 | -2.594e-05 | + | | 4 | 33.430 | -58.4 | 24.74 | 0 |
| Model code | Intercept | NO ³⁻ | FG (DRY/LEG) | NO ³⁻ *FG (DRY/LEG) | df | logLik | AICc | delta | weight |
| 8 | 0.6507 | -0.0028900 | + | + | 5 | 53.675 | -96.6 | 0 | 1 |
| 2 | 0.5360 | | + | | 3 | 33.404 | -60.5 | 36.11 | 0 |
| 4 | 0.5428 | -0.0001699 | + | | 4 | 33.467 | -58.5 | 38.17 | 0 |
| Model code | Intercept | pH | FG (DRY/LEG) | pH*FG (DRY/LEG) | df | logLik | AICc | delta | weight |
| 8 | -0.1200 | 0.12490 | + | + | 5 | 62.007 | -113.3 | 0 | 1 |
| 2 | 0.5360 | | + | | 3 | 33.404 | -60.5 | 52.77 | 0 |
| 4 | 0.4370 | 0.01884 | + | | 4 | 34.057 | -59.6 | 53.66 | 0 |
| Model code | | Al ³⁺ | FG (DRY/LEG) | Al ³⁺ *FG (DRY/LEG) | df | logLik | AICc | delta | weight |
| 8 | 0.6887 | -0.1133 | + | + | 5 | 66.131 | -121.5 | 0 | 1 |
| 3 | 0.5360 | | + | | 3 | 33.404 | -60.5 | 61.02 | 0 |
| 4 | 0.5550 | -0.01404 | + | | 4 | 33.863 | -59.3 | 62.29 | 0 |
| Model code | Intercept | Community NRI | FG(LEG/NON) | NRI*FG (LEG/NON) | df | logLik | AICc | delta | weight |
| 8 | -0.5537 | 0.8400 | + | + | 5 | -153.726 | 318.2 | 0 | 0.947 |
| 4 | -0.5686 | 0.4332 | + | | 4 | -157.773 | 324.0 | 5.85 | 0.051 |
| 2 | -0.5846 | | + | | 3 | -161.961 | 330.2 | 12.03 | 0.002 |
| Model code | Intercept | pH2009-2005 | pH | pH*(pH2009-2005) | df | logLik | AICc | delta | weight |
| 8 | 5.347 | 1.176 | + | + | 5 | -23.817 | 60.1 | 0 | 0.834 |
| 3 | 5.347 | 1.676 | + | | 3 | -28.464 | 63.9 | 3.72 | 0.130 |
| 4 | 5.268 | 1.676 | + | | 4 | -28.420 | 66.4 | 6.31 | 0.036 |
| Model code | Intercept | RBA | FG(LEG/DRY) | (pH2009-2005)*FG(DRY/LEG) | df | logLik | AICc | delta | weight |
| 8 | -1.4980 | 3.0800 | + | + | 5 | -13.147 | 38.8 | 0 | 1 |
| 1 | -0.6733 | | | | 2 | -29.252 | 62.9 | 24.15 | 0 |
| 2 | -0.17920 | 0.3034 | + | | 3 | -29.127 | 65.2 | 26.38 | 0 |
| Model code | Intercept | Ca ²⁺ 2009-2005 | | | df | logLik | AICc | delta | weight |
| 2 | 4.697 | 1.281 | | | 3 | -50.033 | 107.0 | 0.00 | 0.966 |
| 1 | 5.201 | | | | 2 | -54.634 | 113.7 | 6.72 | 0.034 |
| Model code | Intercept | RBA | FG (DRY/LEG) Ca ²⁺ | RBA*FG (DRY/LEG) Ca ²⁺ | df | logLik | AICc | delta | weight |
| 8 | -0.4078 | 1.724 | + | + | 5 | -23.742 | 60.0 | 1.05 | 0.259 |
| 2 | 0.3004 | 0.2514 | | | 3 | -27.146 | 61.2 | 2.28 | 0.140 |
| 3 | 0.3931 | | + | | 3 | -27.244 | 61.4 | 2.48 | 0.127 |
| 4 | 0.2383 | 0.3333 | + | | 4 | -27.114 | 63.8 | 4.89 | 0.038 |

• means interaction.



Table S2. Mean values for pH (H₂O), phosphorus (P), potassium (K), calcium (Ca) magnesium (Mg), aluminium (Al³⁺), potential acidity (H+Al), bases sum (BS), Cation Exchange Capacity (CEC), bases saturation (V), aluminium saturation (m), organic matter (OM), iron (Fe) total basal area (BA), relative basal area of leguminous trees (LEG), relative basal area of non-leguminous drought-tolerant tree species typical of seasonally dry forests (DRY), relative basal area of other species (OTHER), total nitrogen (Total N), nitrate (NO³⁻), ammonium (NH⁴⁺), and net relatedness index (NRI). Samples: DW–dystrophic woodland, TW – transitional woodland, MW – mesotrophic woodland.

| Sample | pH | P | K | Ca | Mg | Al ³⁺ | H+Al | BS | CEC1 | CEC2 | V | m | OM | Fe | BA (cm ³ /plot) | LEG | DRY | OTHER | Total N (%) | NO ³⁻ (mg/kg) | NH ⁴⁺ (mg/kg) | NRI |
|--------|------|------|--------|-------|------|------------------|-------|-------|-------|-------|-------|-------|------|--------|-------------------------------|------|------|-------|----------------|-----------------------------|-----------------------------|-------|
| DW1-p1 | 3.43 | 1.77 | 32.67 | 0.25 | 0.06 | 3.48 | 17.43 | 0.40 | 3.87 | 17.83 | 2.23 | 89.73 | 8.37 | 42.87 | 11588.02 | 0.47 | 0.38 | 0.15 | 0.16 | 84.92 | 292.18 | -2.40 |
| DW1-p2 | 3.58 | 1.87 | 36.67 | 0.27 | 0.08 | 3.44 | 17.03 | 0.44 | 3.88 | 17.47 | 2.53 | 88.67 | 7.70 | 47.13 | 10476.79 | 0.47 | 0.39 | 0.14 | 0.16 | 91.68 | 593.03 | -1.34 |
| DW1-p3 | 3.78 | 1.27 | 38.67 | 0.38 | 0.12 | 2.99 | 15.20 | 0.59 | 3.58 | 15.79 | 3.73 | 83.50 | 6.57 | 44.33 | 10181.91 | 0.28 | 0.34 | 0.37 | 0.15 | 91.47 | 433.64 | -1.97 |
| DW1-p4 | 3.73 | 1.50 | 36.00 | 0.32 | 0.09 | 3.48 | 18.63 | 0.50 | 3.98 | 19.13 | 2.60 | 87.50 | 8.83 | 39.47 | 10243.84 | 0.50 | 0.26 | 0.24 | 0.15 | 176.02 | 521.81 | -4.12 |
| DW1-p5 | 3.82 | 1.37 | 40.33 | 0.71 | 0.19 | 3.41 | 19.70 | 0.99 | 4.41 | 20.69 | 4.80 | 77.47 | 9.12 | 43.53 | 14542.37 | 0.53 | 0.21 | 0.25 | 0.15 | 128.01 | 709.04 | -3.06 |
| DW2-p1 | 3.88 | 0.70 | 64.33 | 0.25 | 0.08 | 2.44 | 11.33 | 0.49 | 2.93 | 11.82 | 4.13 | 83.20 | 5.07 | 62.37 | 18725.06 | 0.17 | 0.16 | 0.67 | 0.15 | 93.97 | 449.98 | -1.94 |
| DW2-p2 | 4.24 | 0.67 | 82.00 | 0.12 | 0.05 | 2.41 | 10.40 | 0.38 | 2.78 | 10.78 | 3.50 | 86.43 | 4.56 | 56.50 | 20998.32 | 0.35 | 0.49 | 0.15 | 0.19 | 45.89 | 374.81 | -1.75 |
| DW2-p3 | 4.56 | 0.83 | 64.00 | 0.19 | 0.07 | 2.57 | 11.67 | 0.42 | 2.99 | 12.09 | 3.47 | 85.93 | 5.10 | 52.27 | 14362.02 | 0.34 | 0.39 | 0.27 | 0.19 | 50.94 | 525.56 | -1.72 |
| DW2-p4 | 3.88 | 0.70 | 43.33 | 0.14 | 0.06 | 2.80 | 11.53 | 0.31 | 3.11 | 11.84 | 2.63 | 90.03 | 4.98 | 49.53 | 16445.10 | 0.29 | 0.43 | 0.28 | 0.19 | 67.30 | 686.14 | -2.69 |
| DW2-p5 | 4.04 | 0.77 | 50.00 | 0.23 | 0.08 | 2.70 | 11.17 | 0.44 | 3.14 | 11.61 | 3.80 | 85.87 | 5.10 | 58.77 | 16569.99 | 0.46 | 0.52 | 0.03 | 0.16 | 44.24 | 812.72 | -2.48 |
| DW3-p1 | 4.74 | 3.63 | 89.33 | 0.70 | 0.48 | 1.50 | 9.70 | 1.41 | 2.91 | 11.11 | 12.67 | 51.50 | 4.85 | 71.87 | 24817.97 | 0.23 | 0.42 | 0.35 | 0.20 | 61.28 | 474.85 | 0.00 |
| DW3-p2 | 4.99 | 1.13 | 80.67 | 1.06 | 0.43 | 1.17 | 9.63 | 1.70 | 2.88 | 11.34 | 15.03 | 40.70 | 5.15 | 84.73 | 13214.68 | 0.31 | 0.30 | 0.39 | 0.13 | 26.95 | 237.98 | -0.07 |
| DW3-p3 | 4.77 | 0.93 | 80.33 | 0.70 | 0.38 | 1.53 | 9.40 | 1.28 | 2.80 | 10.68 | 12.00 | 54.43 | 5.23 | 98.57 | 19523.78 | 0.16 | 0.26 | 0.58 | 0.15 | 59.83 | 438.63 | 0.45 |
| DW3-p4 | 4.46 | 0.90 | 74.00 | 0.78 | 0.38 | 1.82 | 10.33 | 1.35 | 3.17 | 11.69 | 11.53 | 57.37 | 5.23 | 92.13 | 20026.32 | 0.16 | 0.31 | 0.54 | 0.18 | 39.54 | 380.25 | 0.47 |
| DW3-p5 | 4.80 | 1.10 | 75.00 | 0.62 | 0.44 | 1.53 | 10.43 | 1.25 | 2.78 | 11.69 | 10.73 | 54.90 | 5.40 | 95.33 | 21332.00 | 0.15 | 0.49 | 0.36 | 0.19 | 41.11 | 383.10 | -0.10 |
| TW1-p1 | 5.02 | 0.90 | 107.33 | 0.64 | 0.63 | 1.82 | 10.77 | 1.54 | 3.36 | 12.31 | 12.53 | 54.27 | 6.03 | 59.07 | 20098.93 | 0.13 | 0.70 | 0.17 | 0.19 | 72.14 | 341.73 | -1.27 |
| TW1-p2 | 4.67 | 1.20 | 108.00 | 0.39 | 0.54 | 2.31 | 12.50 | 1.20 | 3.51 | 13.70 | 8.77 | 65.77 | 6.07 | 77.00 | 18346.01 | 0.06 | 0.86 | 0.08 | 0.21 | 11.30 | 684.68 | -1.61 |
| TW1-p3 | 4.61 | 0.97 | 124.00 | 0.55 | 0.61 | 2.08 | 11.57 | 1.48 | 3.56 | 13.04 | 11.33 | 58.50 | 5.90 | 84.80 | 19968.04 | 0.10 | 0.68 | 0.22 | 0.21 | 26.37 | 110.84 | -0.70 |
| TW1-p4 | 4.82 | 1.63 | 150.33 | 0.78 | 0.80 | 1.89 | 11.10 | 1.97 | 3.85 | 13.07 | 15.00 | 49.00 | 6.07 | 61.17 | 23125.16 | 0.17 | 0.63 | 0.20 | 0.15 | 13.06 | 539.37 | -1.06 |
| TW1-p5 | 4.47 | 1.03 | 121.67 | 0.65 | 0.64 | 2.57 | 11.37 | 1.59 | 4.16 | 12.96 | 12.27 | 61.73 | 5.69 | 70.90 | 12836.47 | 0.14 | 0.54 | 0.32 | 0.14 | 43.73 | 573.31 | 0.22 |
| TW2-p1 | 5.54 | 1.47 | 60.67 | 2.08 | 0.95 | 0.88 | 7.57 | 3.19 | 4.07 | 10.76 | 29.70 | 21.07 | 4.61 | 72.23 | 17846.58 | 0.34 | 0.62 | 0.04 | 0.16 | 15.01 | 334.19 | 0.43 |
| TW2-p2 | 5.14 | 1.20 | 56.00 | 1.30 | 0.67 | 1.63 | 9.17 | 2.12 | 3.74 | 11.28 | 18.77 | 43.43 | 4.81 | 100.13 | 19498.67 | 0.05 | 0.89 | 0.07 | 0.19 | 9.90 | 365.23 | 0.77 |
| TW2-p3 | 5.15 | 1.27 | 80.33 | 1.52 | 0.61 | 1.37 | 9.33 | 2.33 | 3.70 | 11.67 | 20.00 | 36.97 | 5.52 | 91.93 | 19194.38 | 0.01 | 0.77 | 0.22 | 0.18 | 8.33 | 306.53 | 0.18 |
| TW2-p4 | 4.95 | 1.40 | 75.33 | 0.40 | 0.26 | 2.67 | 9.60 | 0.85 | 3.52 | 10.45 | 8.17 | 75.77 | 4.44 | 41.37 | 18114.37 | 0.05 | 0.74 | 0.21 | 0.17 | 8.12 | 381.91 | 0.17 |
| TW2-p5 | 4.99 | 1.47 | 146.67 | 0.95 | 0.45 | 2.18 | 9.77 | 1.78 | 3.96 | 11.55 | 15.47 | 55.00 | 4.94 | 66.73 | 18107.82 | 0.00 | 0.81 | 0.19 | 0.15 | 8.38 | 396.45 | 0.63 |
| TW3-p1 | 5.55 | 1.70 | 161.00 | 4.40 | 0.56 | 0.13 | 7.93 | 5.38 | 5.51 | 13.31 | 40.23 | 2.53 | 5.78 | 107.83 | 19056.17 | 0.19 | 0.70 | 0.10 | 0.19 | 8.87 | 263.07 | 0.86 |
| TW3-p2 | 5.53 | 2.17 | 170.67 | 3.76 | 0.62 | 0.36 | 7.83 | 4.82 | 5.18 | 12.65 | 37.77 | 7.63 | 5.82 | 129.00 | 15641.75 | 0.14 | 0.70 | 0.16 | 0.19 | 8.15 | 317.18 | 0.63 |
| TW3-p3 | 5.47 | 1.60 | 163.33 | 2.96 | 0.47 | 0.39 | 8.27 | 3.85 | 4.24 | 12.11 | 31.73 | 9.23 | 5.23 | 61.10 | 17027.07 | 0.15 | 0.79 | 0.06 | 0.20 | 10.01 | 397.71 | 0.03 |
| TW3-p4 | 5.24 | 0.53 | 80.67 | 1.20 | 0.21 | 1.43 | 7.17 | 1.61 | 3.04 | 8.78 | 18.37 | 46.97 | 3.93 | 64.57 | 23921.11 | 0.04 | 0.76 | 0.20 | 0.16 | 6.94 | 330.63 | 0.51 |
| TW3-p5 | 5.20 | 0.73 | 117.33 | 1.04 | 0.27 | 1.40 | 8.40 | 1.61 | 3.01 | 10.01 | 16.13 | 46.50 | 4.44 | 95.10 | 18907.46 | 0.15 | 0.31 | 0.54 | 0.18 | 9.07 | 238.74 | -0.05 |
| MW1-p1 | 7.12 | 2.87 | 162.00 | 12.85 | 0.75 | 0.00 | 0.63 | 14.01 | 14.01 | 14.64 | 95.70 | 0.00 | 7.16 | 44.67 | 20995.86 | 0.11 | 0.48 | 0.41 | 0.17 | 63.22 | 228.04 | 0.81 |
| MW1-p2 | 7.34 | 3.53 | 190.67 | 13.63 | 0.98 | 0.00 | 0.57 | 15.10 | 15.10 | 15.66 | 96.33 | 0.00 | 8.08 | 45.20 | 17930.06 | 0.23 | 0.39 | 0.38 | 0.18 | 55.25 | 215.45 | -0.11 |
| MW1-p3 | 7.06 | 3.47 | 210.33 | 12.54 | 0.89 | 0.00 | 1.07 | 13.97 | 13.97 | 15.03 | 92.43 | 0.00 | 7.83 | 39.40 | 18158.99 | 0.35 | 0.48 | 0.18 | 0.17 | 67.47 | 328.97 | 0.34 |



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Table S2. Cont.

| Sample | pH | P | K | Ca | Mg | Al ³⁺ | H+Al | BS | CEC1 | CEC2 | V | m | OM | Fe | BA (cm ³ /plot) | LEG | DRY | OTHER | Total N (%) | NO ₃ ⁻ (mg/kg) | NH ₄ ⁺ (mg/kg) | NRI |
|--------|------|------|--------|-------|------|------------------|------|-------|-------|-------|-------|------|------|-------|-------------------------------|------|------|-------|----------------|---|---|-------|
| MW1-p4 | 7.35 | 4.27 | 227.33 | 11.64 | 0.78 | 0.00 | 1.37 | 13.00 | 13.00 | 14.36 | 90.47 | 0.00 | 7.83 | 52.83 | 18470.06 | 0.22 | 0.29 | 0.49 | 0.13 | 65.71 | 180.54 | 1.10 |
| MW1-p5 | 7.19 | 3.20 | 182.67 | 9.93 | 0.70 | 0.00 | 1.70 | 11.09 | 11.09 | 12.79 | 86.80 | 0.00 | 7.58 | 66.90 | 18089.49 | 0.34 | 0.33 | 0.33 | 0.17 | 54.07 | 426.90 | 1.39 |
| MW2-p1 | 6.57 | 4.87 | 184.33 | 8.21 | 1.07 | 0.00 | 2.83 | 9.75 | 9.75 | 12.59 | 77.50 | 0.00 | 6.95 | 72.03 | 16309.87 | 0.04 | 0.71 | 0.25 | 0.18 | 13.57 | 386.84 | 0.10 |
| MW2-p2 | 6.24 | 3.63 | 229.67 | 7.51 | 1.16 | 0.00 | 4.40 | 9.26 | 9.26 | 13.66 | 67.80 | 0.00 | 6.45 | 90.10 | 31200.23 | 0.05 | 0.60 | 0.35 | 0.17 | 10.44 | 294.56 | 0.32 |
| MW2-p3 | 6.25 | 4.00 | 203.33 | 7.38 | 1.36 | 0.00 | 4.27 | 9.26 | 9.26 | 13.53 | 68.53 | 0.00 | 6.82 | 56.90 | 24265.38 | 0.07 | 0.63 | 0.30 | 0.15 | 9.96 | 225.17 | 1.48 |
| MW2-p4 | 6.46 | 2.77 | 196.33 | 8.36 | 1.49 | 0.00 | 3.33 | 10.35 | 10.35 | 13.69 | 75.67 | 0.00 | 6.44 | 42.43 | 21275.99 | 0.08 | 0.52 | 0.40 | 0.13 | 14.04 | 241.20 | 1.64 |
| MW2-p5 | 6.33 | 5.93 | 224.67 | 7.86 | 1.63 | 0.00 | 3.73 | 10.06 | 10.06 | 13.79 | 72.97 | 0.00 | 7.07 | 44.93 | 18957.73 | 0.07 | 0.68 | 0.25 | 0.17 | 9.01 | 306.29 | 1.19 |
| MW3-p1 | 5.56 | 2.93 | 102.67 | 5.55 | 0.47 | 0.17 | 8.03 | 6.28 | 6.44 | 14.31 | 43.87 | 2.60 | 5.78 | 70.83 | 21036.33 | 0.07 | 0.72 | 0.20 | 0.20 | 10.58 | 318.91 | 0.60 |
| MW3-p2 | 5.65 | 3.00 | 76.33 | 5.88 | 0.35 | 0.10 | 7.47 | 6.42 | 6.52 | 13.89 | 46.23 | 1.57 | 5.74 | 35.90 | 19185.93 | 0.04 | 0.66 | 0.30 | 0.19 | 12.09 | 298.14 | 0.44 |
| MW3-p3 | 5.80 | 3.23 | 59.00 | 6.21 | 0.49 | 0.03 | 7.07 | 6.85 | 6.88 | 13.92 | 49.13 | 0.53 | 6.19 | 40.33 | 15610.06 | 0.08 | 0.58 | 0.34 | 0.21 | 6.21 | 402.51 | -0.18 |
| MW3-p4 | 6.10 | 3.40 | 81.67 | 7.96 | 0.87 | 0.00 | 5.63 | 9.04 | 9.04 | 14.67 | 61.60 | 0.00 | 6.19 | 39.23 | 15742.79 | 0.08 | 0.55 | 0.36 | 0.21 | 11.33 | 197.82 | -0.08 |
| MW3-p5 | 6.28 | 3.17 | 68.00 | 6.24 | 0.75 | 0.00 | 4.43 | 7.17 | 7.17 | 11.60 | 56.40 | 0.00 | 6.82 | 45.00 | 13489.73 | 0.05 | 0.64 | 0.31 | 0.23 | 19.34 | 68.50 | -0.03 |

