**SUPPLEMENTARY MATERIAL**

The Supplementary Material for the article titled: “**Nitrogen and phosphorus retranslocation of leaves and stemwood in a mature *Eucalyptus* forest exposed to five years of elevated CO2” by** Kristine Y. Crous, Agnieszka Wujeska-Klause, Mingkai Jiang, Belinda E. Medlyn and David S. Ellsworth can be found online at: <https://www.frontiersin.org/articles/10.3389/fpls.2019.00664/full#supplementary-material>

**Figure S1| Annual variation in means and standard error plots of leaf chemistry for mature green leaves collected in February (the austral summer) of each year for (A) mass-based phosphorus in mg g-1, (B) mass-based nitrogen in mg g-1, (C) N:P ratio and (D) C:P ratio (dimensionless).**

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**Figure S2: Correlations between mass-based leaf P and N concentration (mg g-1) of mature green leaves and the amount of rainfall of the preceding one month (left panels, A and C) and six months (right panels, B and D). Pearson correlation coefficients for each panel respectively were: A) 0.82, B) 0.59, C) 0.56 and D) 0.45. All correlations were significant (*P* < 0.008). Elevated CO2 treatment is not indicated as it was not significant (*P* > 0.10).**

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**TABLE S1: Mixed model ANOVA table with F-statistic of green upper canopy leaves over five years with CO2, Age and Year as fixed factors and tree nested within ring as random factors. df represents the degrees of freedom, where two years did not have the newly-flushed age class resulting in a reduction of df from 5 to 3 for the interactions. The variables are as follows: area-based phosphorus in g m-2 (Pa), area-based nitrogen in g m-2 (Na) and leaf mass per area ratio in g m-2 (LMA). Pa was log-transformed for this analysis to conform with normality assumptions. Significant F-statistics are highlighted in bold with significance level indicated as \*\*\* for *P* < 0.0001, \*\* for *P* < 0.01, \* for *P* < 0.05 and + for *P* > 0.05 and *P* < 0.1.**

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| **GREEN upper canopy leaves F-statistic and significance** |
| **Source** | **df** | **Pa**  | **Na** | **LMA** |
| CO2 | 1 | 1.56 | 0.48 | 5.30**+** |
| Age | 1 | **20.24\*\*\*** | **174.2\*\*\*** | **288.7\*\*\*** |
| Year | 5 | **20.43\*\*\*** | **24.24\*\*\*** | **19.72\*\*\*** |
| CO2 x Age | 1 | 0.07 | 3.35**+** | 1.41 |
| CO2 x Year | 5 | 2.09**+** | 1.19 | 1.78 |
| Age x Year | 3 | **11.88\*\*\*** | **6.12\*\*\*** | 0.80 |
| CO2 x Age x Year | 3 | 0.81 | 0.19 | 1.20 |