

Supplementary Information

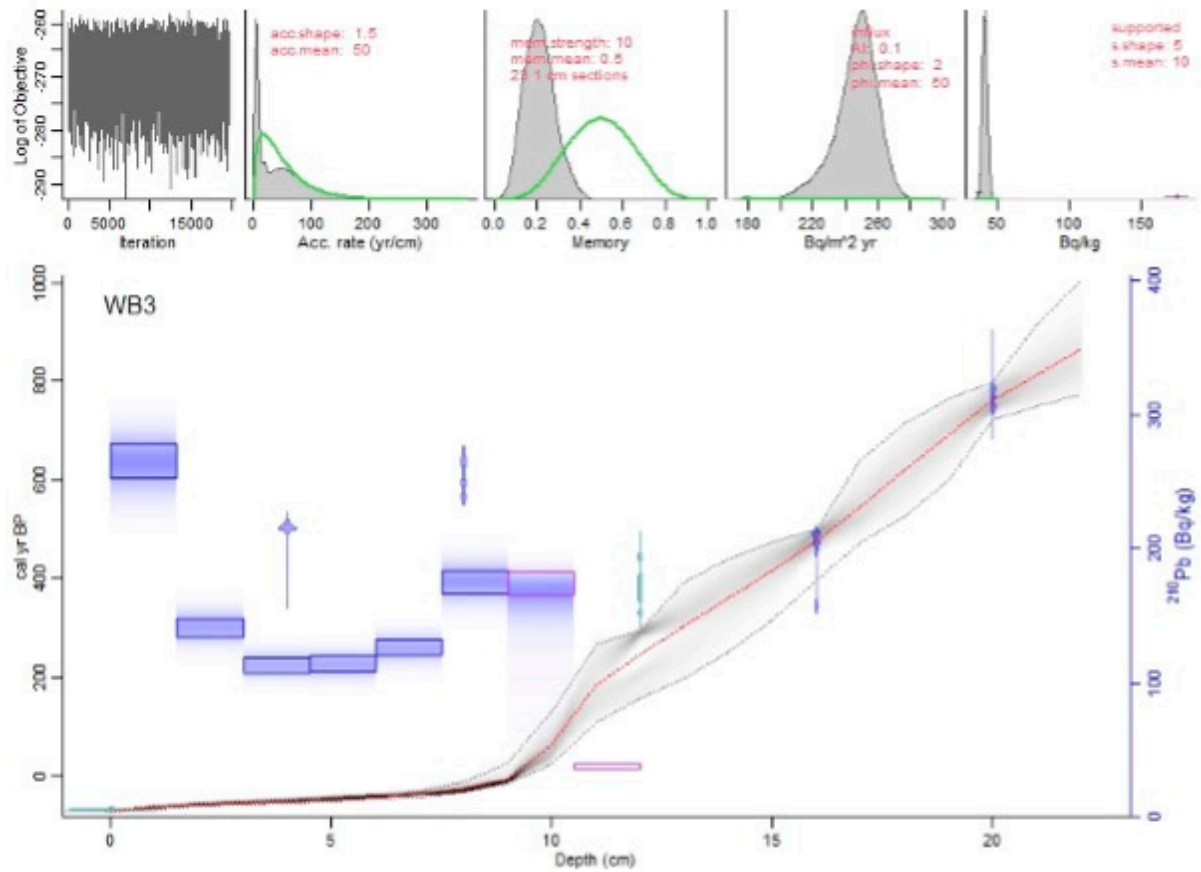


Figure S1 A Bayesian age-depth model for Lake Werri Berri (WB3) using radiocarbon and lead-210 dates. The age depth model was created using the mixed modelling R program 'rplum' (Blaauw et al., 2021).

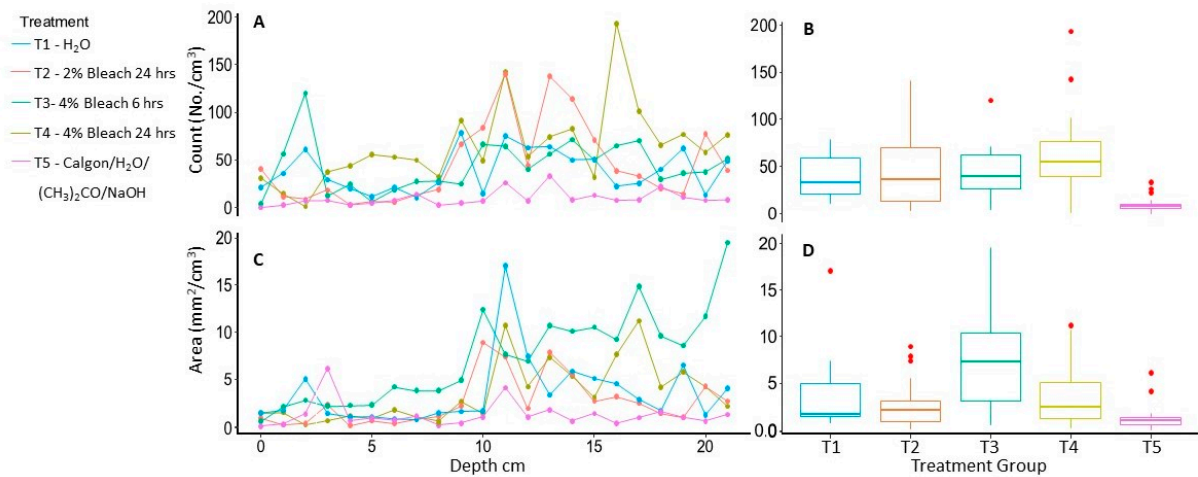


Figure S2 The results of the five treatment groups on WB3. (A) charcoal particle count (No./cm³), (C) charcoal particle area (mm²/cm³). Box and Whisker plot of mean (B) charcoal count, (D) charcoal area. The box represents the median, 25th and 75th quartile values. The whiskers represent the minimum and maximum values. Outliers are represented by red dots.

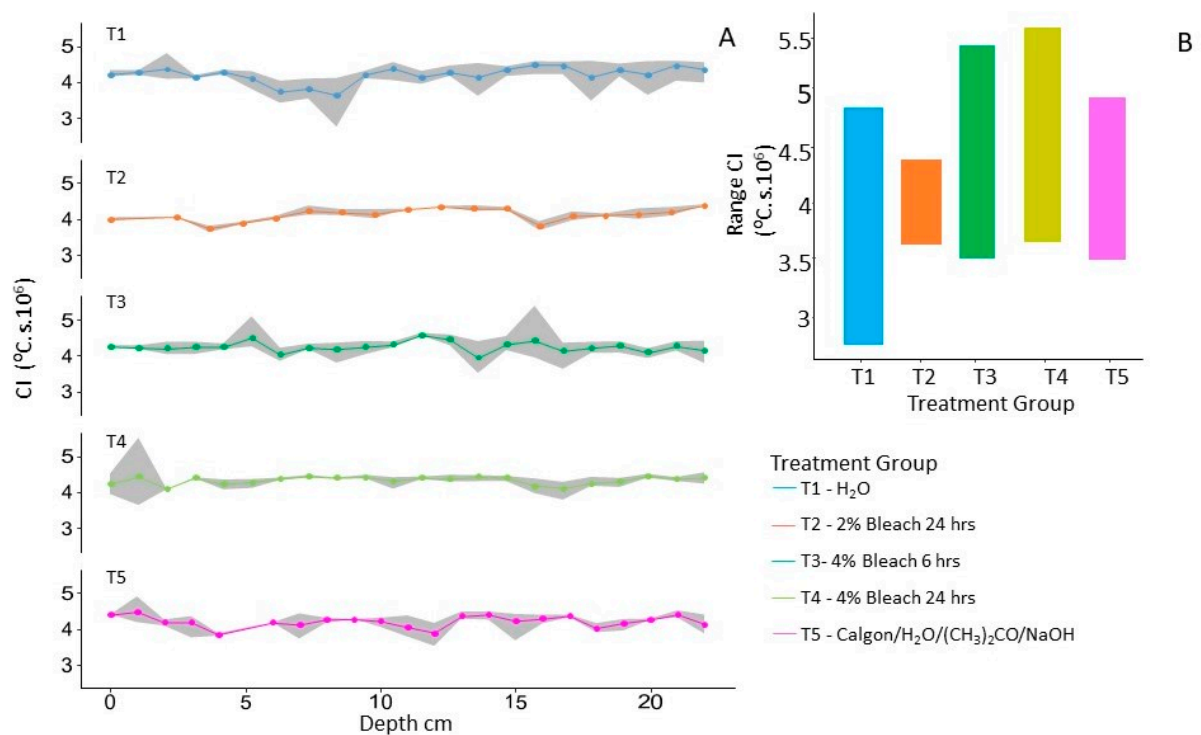


Figure S3 (A) Charring Intensity (°C.s.10⁶) of WB3 treatment groups. On the left-hand side (A) mean CI is presented as a black line and dots. Maximum and minimum values are presented as the grey shaded area. In (B) the range of Charring Intensity is presented for the five treatment groups.

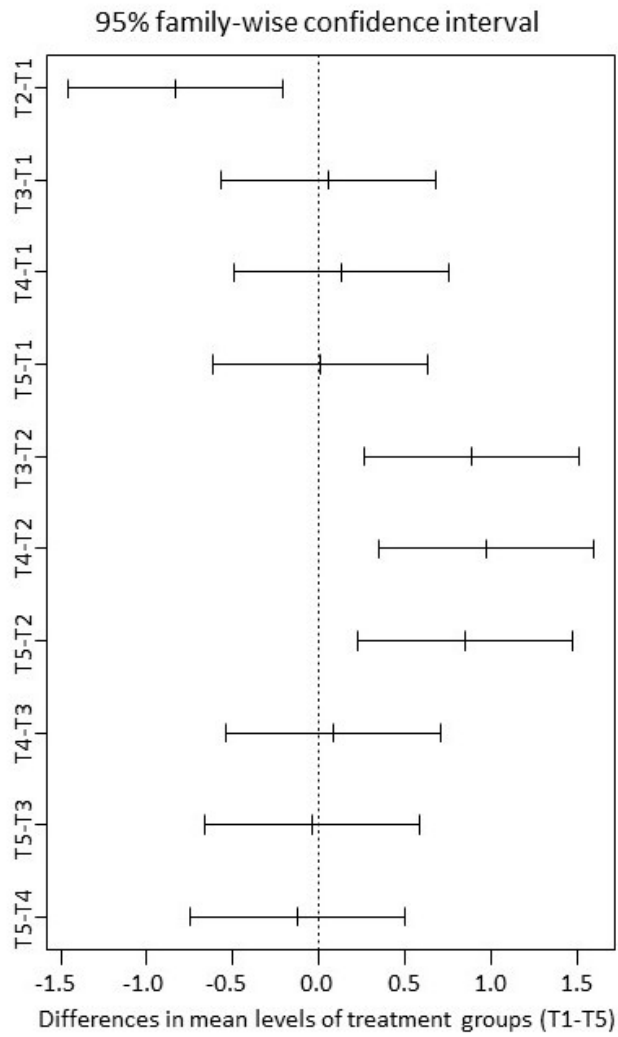


Figure S4 Tukey's HSD test of significance of mean Charring Intensity for each treatment group of WB3. Group comparisons that deviate to the left or right of 0.0 indicate significant differences between groups. This revealed that T2-T1, T3-T2, T4-T2, and T5-T2 showed significant differences.

Table S1 Results of Tukey's HSD test of significance on mean Charring Intensity for WB3.

Group	Pair-wise difference	Adjusted p-value
T2-T1	-0.83775837	0.002876
T3-T1	0.05183701	0.999366
T4-T1	0.13474368	0.974955
T5-T1	0.010158	0.999999
T3-T2	0.88959538	0.001292
T4-T2	0.97250205	0.000334
T5-T2	0.84791636	0.002466
T4-T3	0.08290667	0.99601
T5-T3	-0.04167902	0.999732
T5-T4	-0.12458568	0.981241

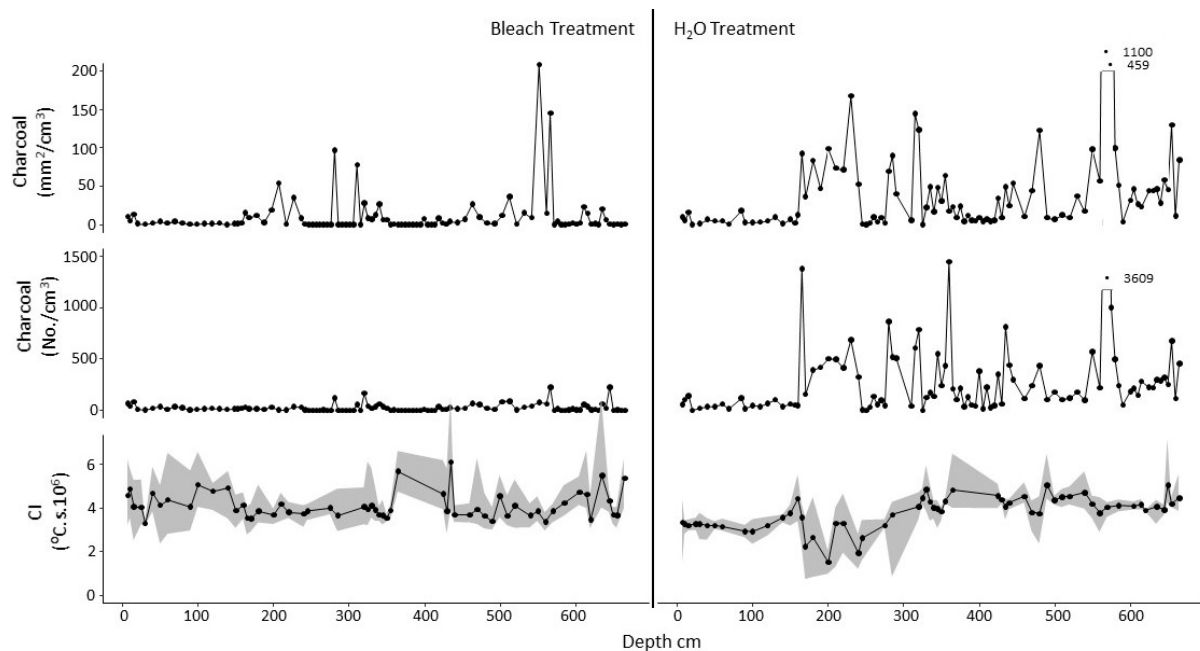


Figure S5 The results of the two treatment groups on LC2. Charcoal concentration is presented as area (mm^2/cm^3) and count ($\text{No.}/\text{cm}^3$). Charring Intensity is presented as a mean (black line) and minimum and maximum values (grey shading). In the H₂O treatment group, values at ~550 cm are truncated at 200 (area) and 1500 (count), respectively, to highlight variation in depths with lower charcoal concentration.