

S1 pairwise behavioural analysis results

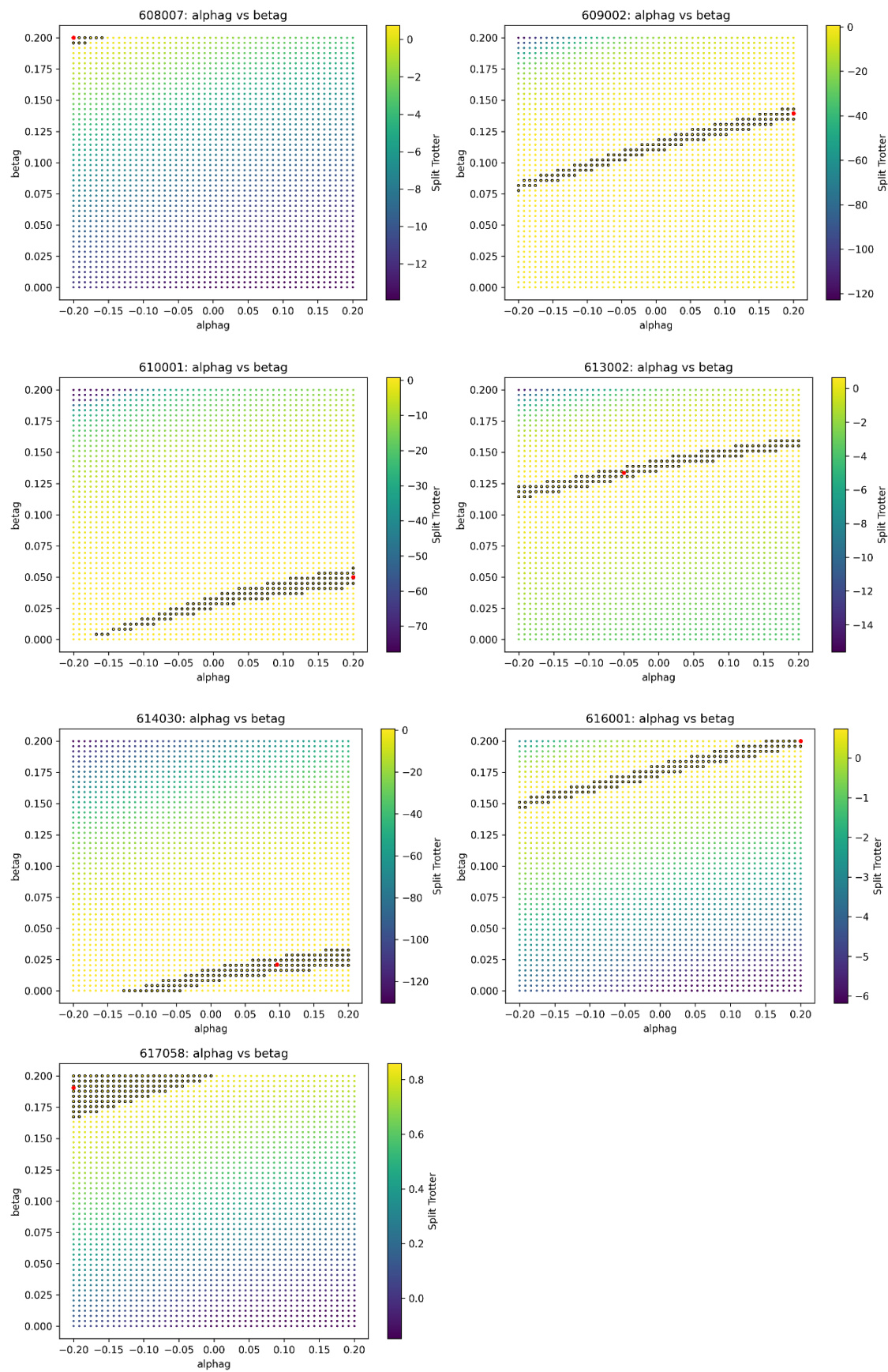


Figure S1. Pairwise behavioural analysis results for *alphag* (fixed) paired with *betag* (retained).

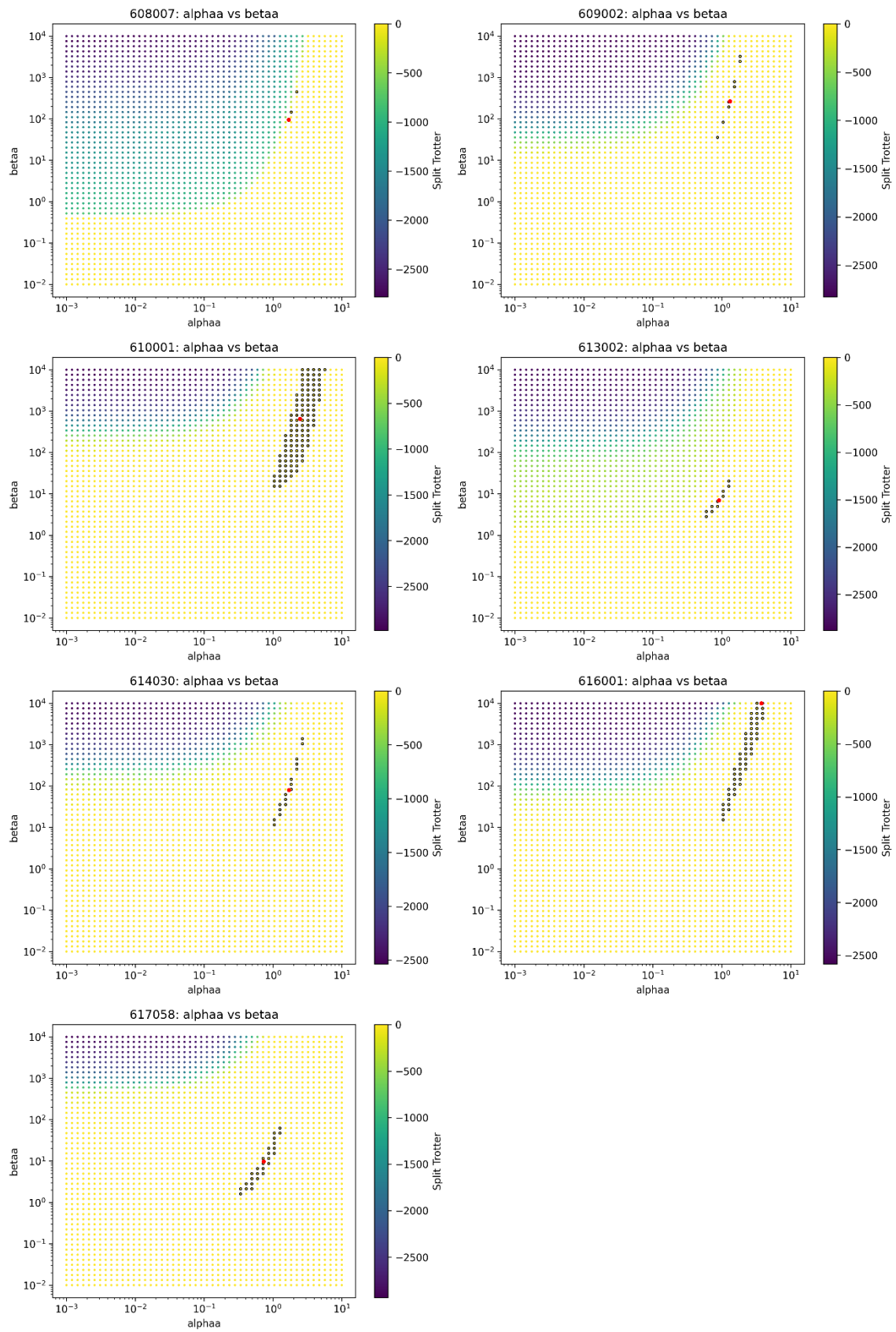


Figure S2. Pairwise behavioural analysis results for *betaa* (fixed) paired with *alphaa* (retained).

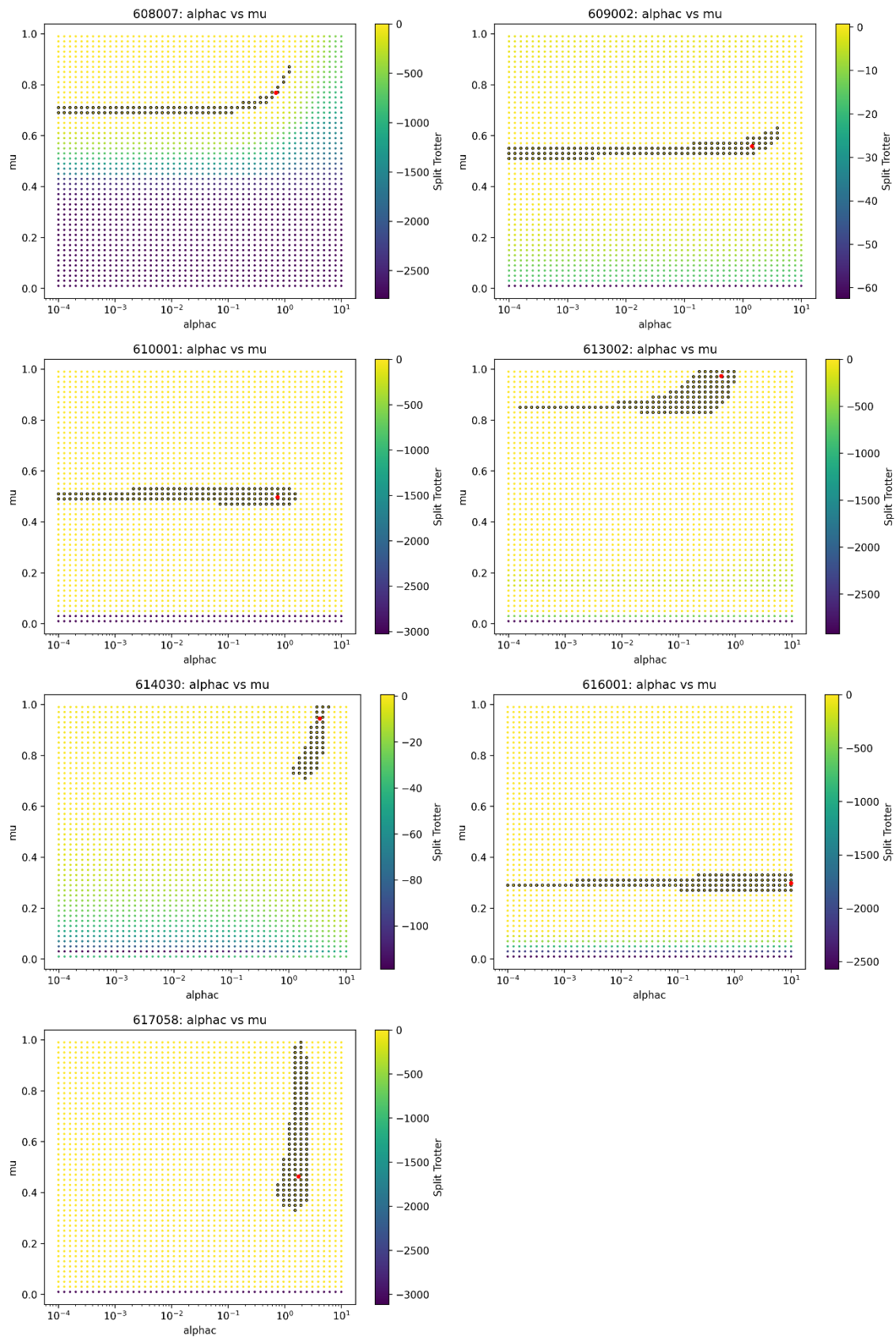


Figure S3. Pairwise behavioural analysis results for α_c (fixed) paired with μ (retained).

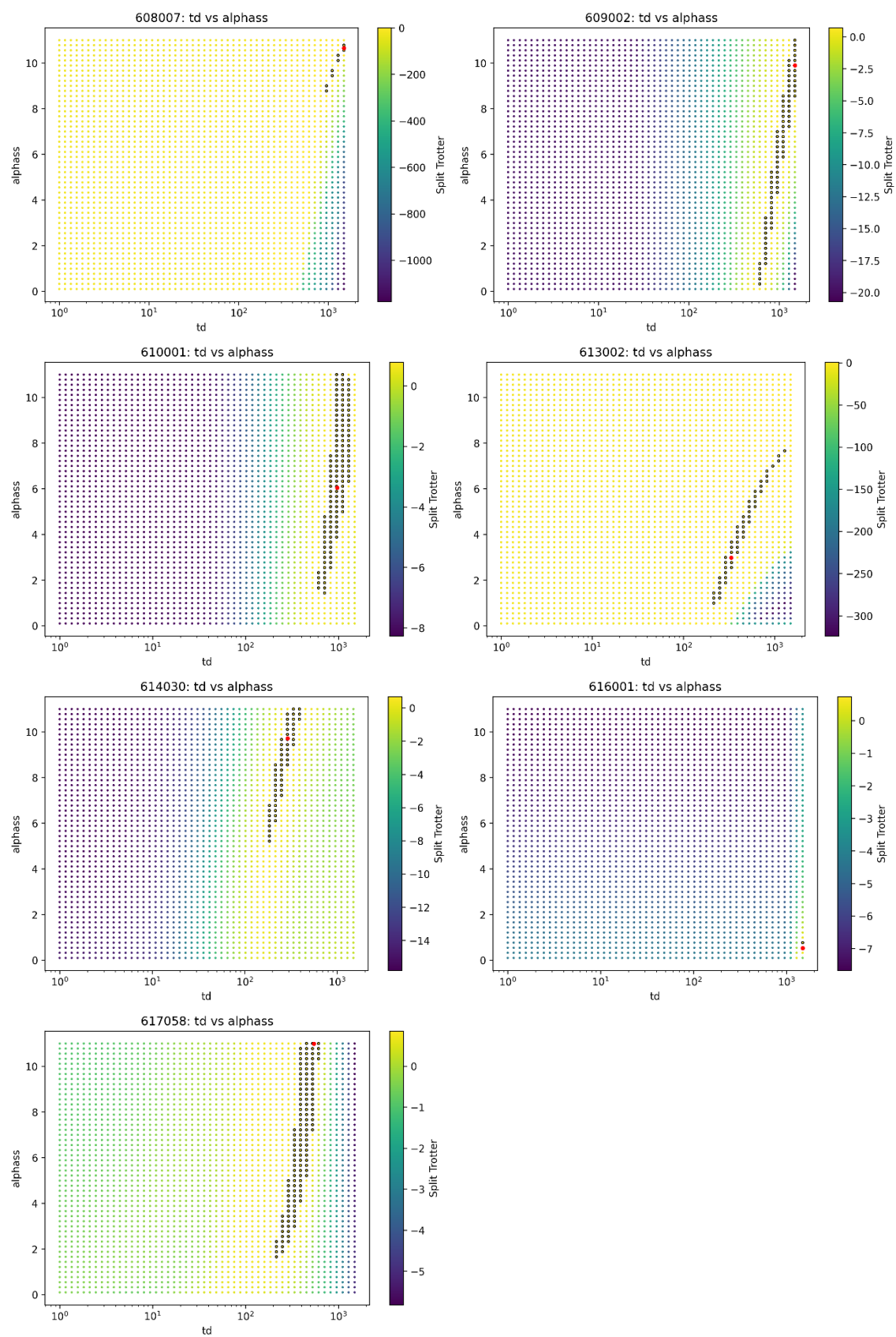


Figure S4. Pairwise behavioural analysis results for *alphas* (fixed) paired with *td* (retained).

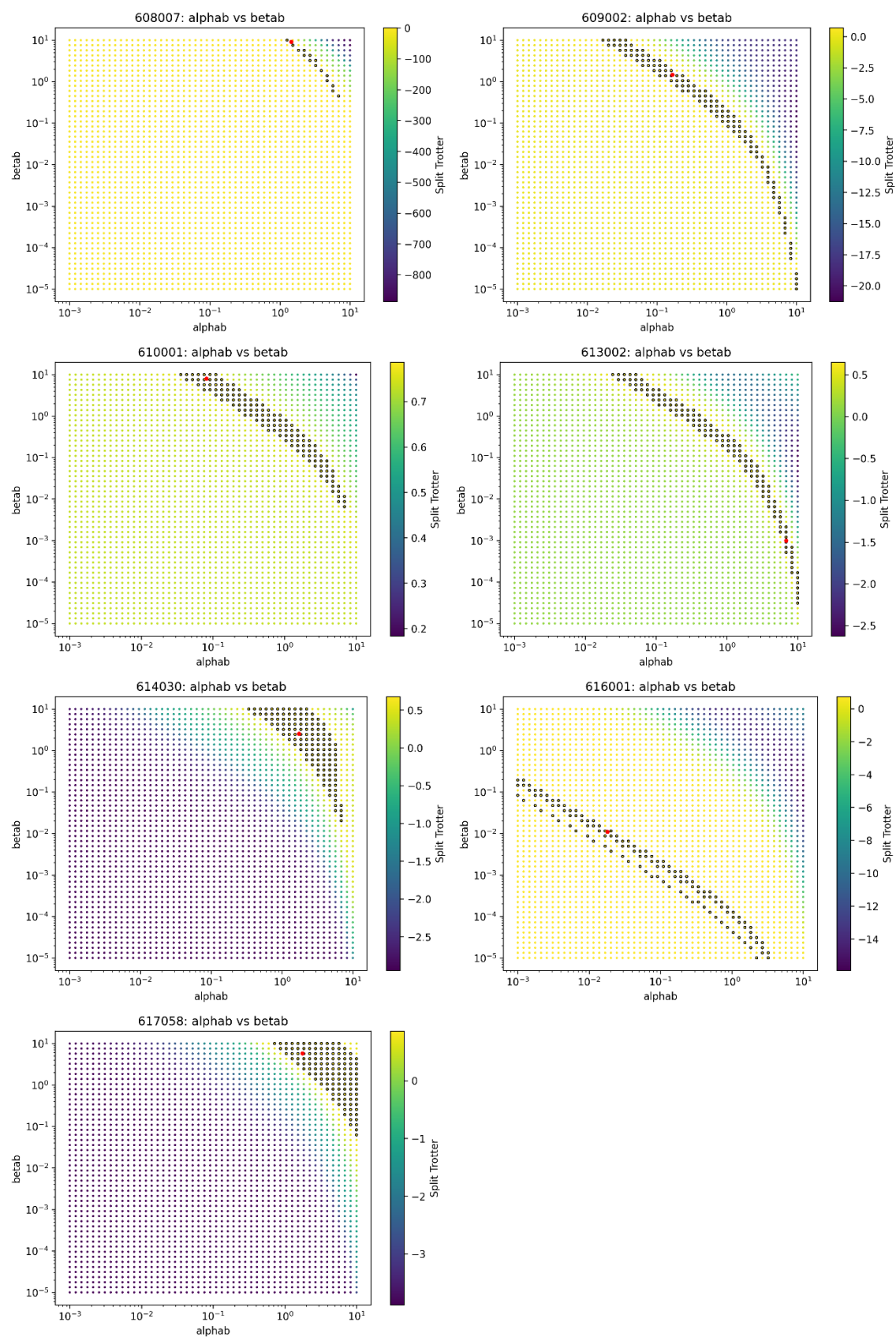


Figure S5. Pairwise behavioural analysis results for *betab* (fixed) paired with *alphab* (retained).

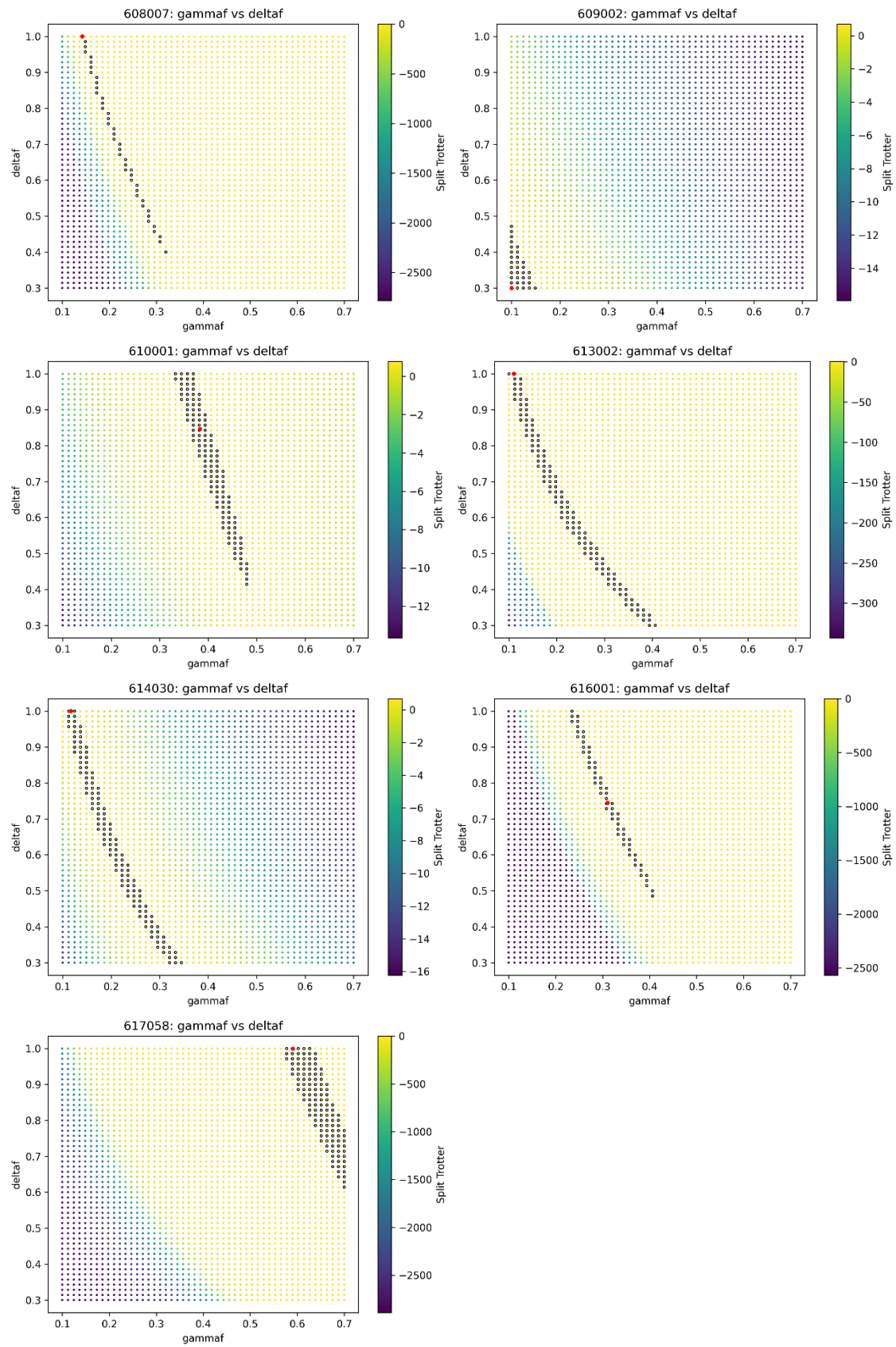


Figure S6. Pairwise behavioural analysis results for *deltax* (fixed) paired with *gammaf* (retained).

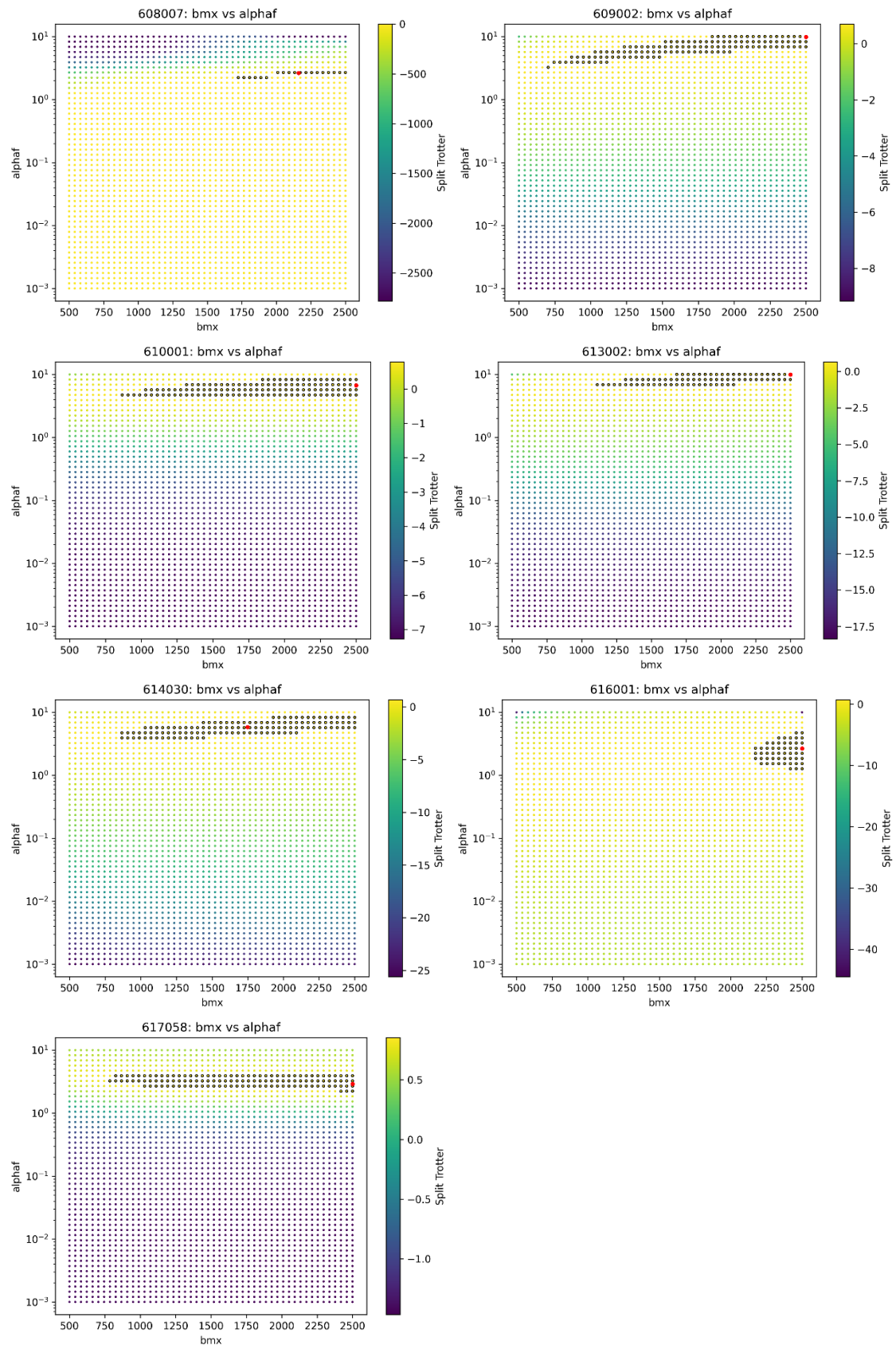


Figure S7. Pairwise behavioural analysis results for *bmx* (fixed) paired with *alphaf* (retained).

S2 Spatial distribution of NSE Bias values across the large sample of catchments

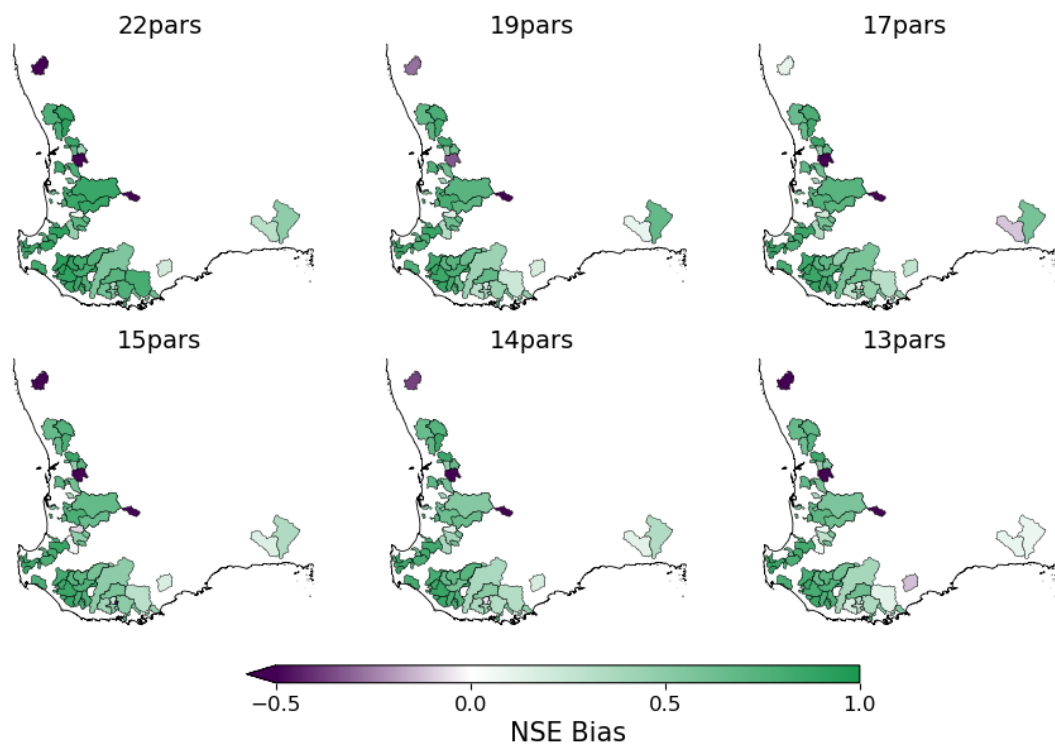


Figure S8. Spatial distribution of NSE Bias values for selected LASCAM configurations (22-, 19-, 17-, 15-, 14- and 13-parameter) across the 76 SWWA catchments. Colours indicate NSE Bias performance, with green representing higher values and purple representing lower (negative) values.