Fig. S1

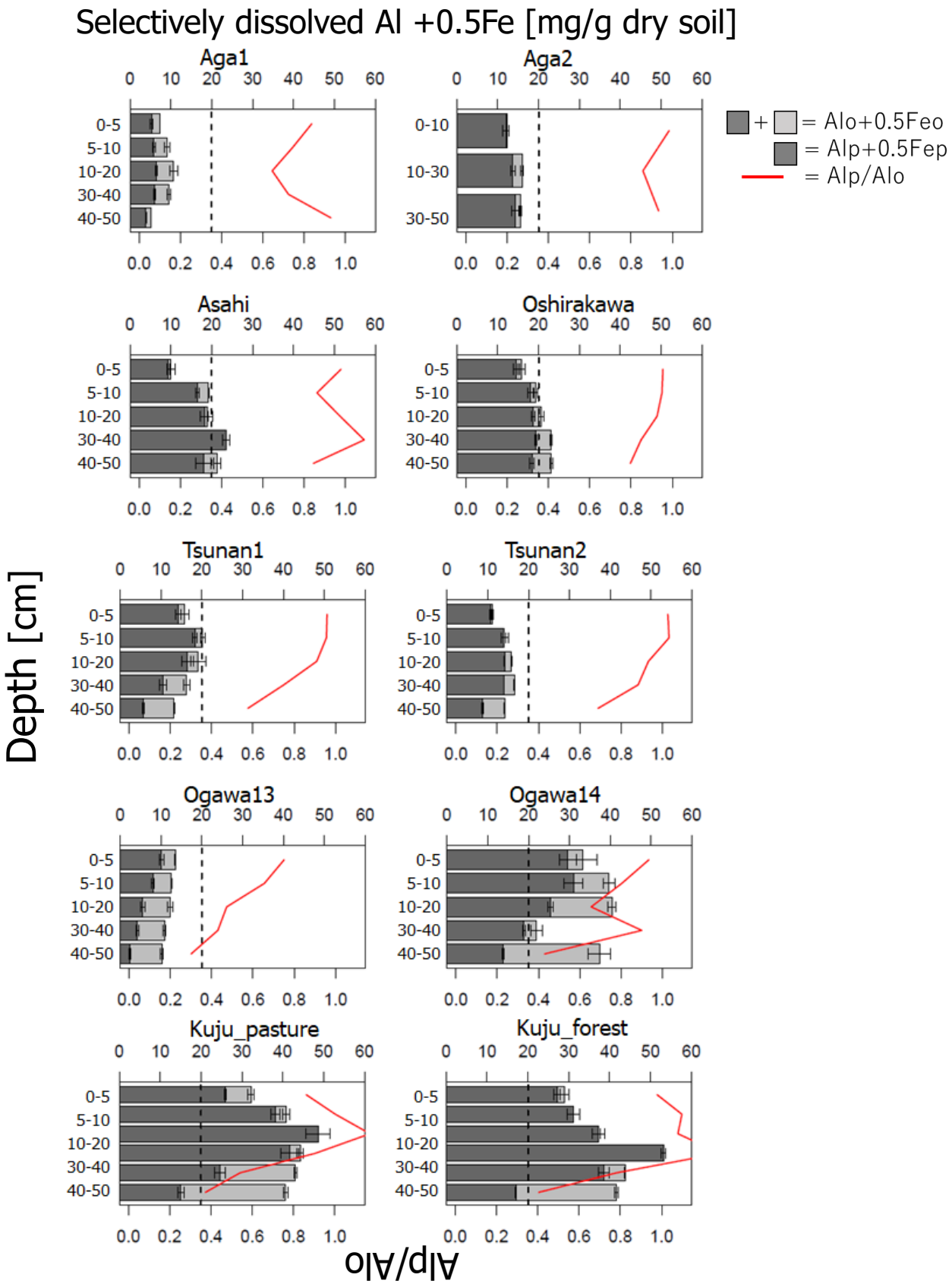

Fig. S1. Vertical profiles of selectively dissolved Al + 0.5Fe contents (Alo+0.5Feo, Alp+0.5Fep) and Alp/Alo for soils from 0 to 50cm depth.

Fig. S2

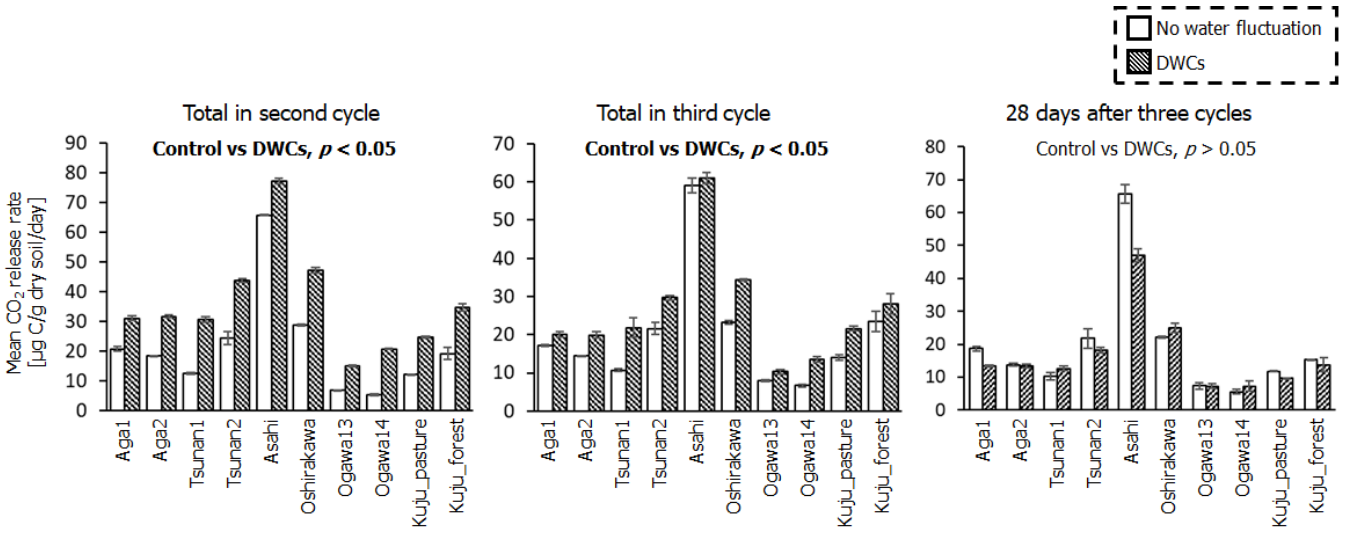

Fig. S2. Comparisons of mean CO_2 release rate for second cycle, third cycle, and the post 28-days incubation after the three cycles between DWCs and continuously constant moisture conditions. Statistically significant differences ($p < 0.05$ by pairwise t-test) in CO_2 release rate between two treatments were also presented.

Fig. S3

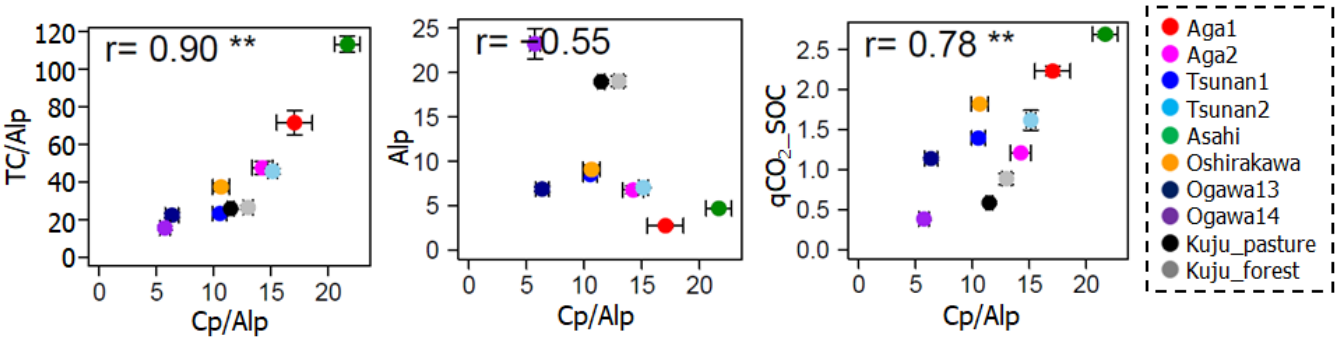

Fig. S3. Relations among soil Alp contents, Cp to Alp molar ratio, and qCO_2_soc. Statistically significant correlation coefficients at $p < 0.01$ and $p < 0.05$ are presented with single (*) and double asterisks (**), respectively.

Fig. S4

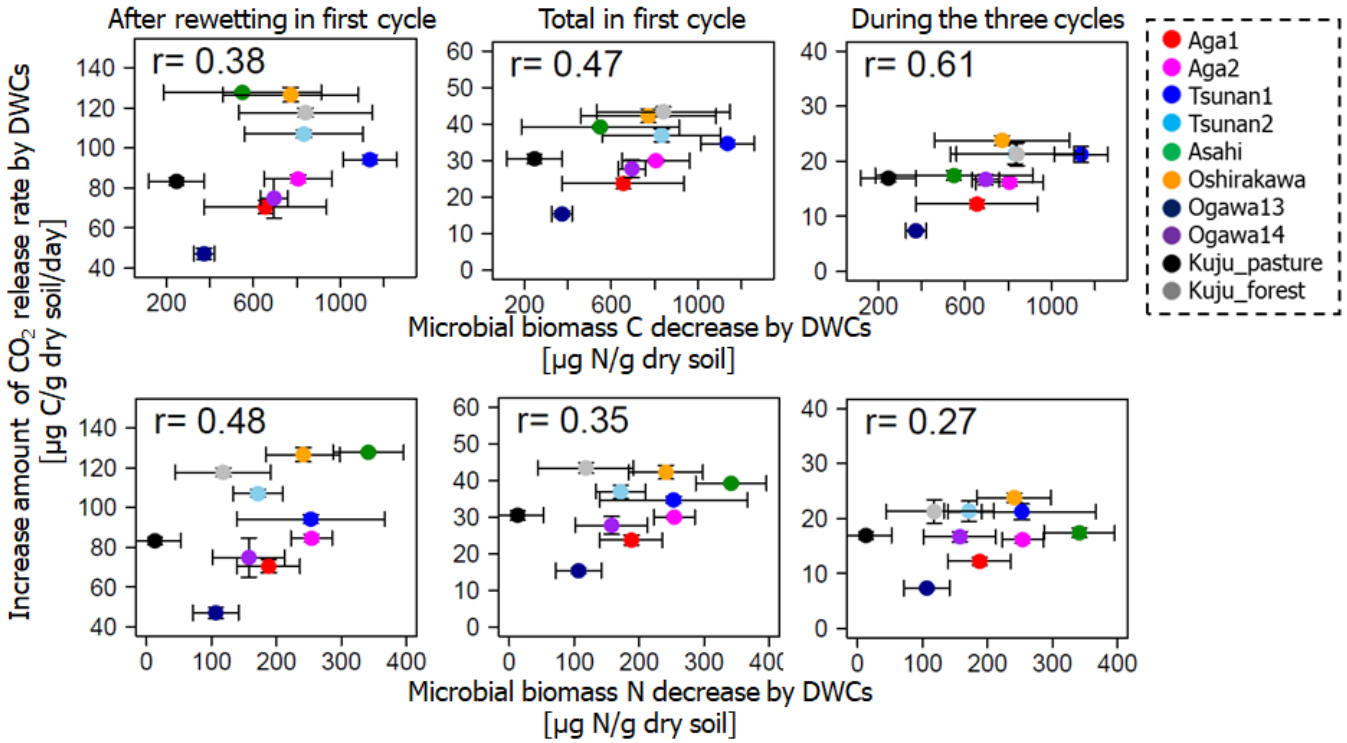

Fig. S4. Relations between the amount of CO_2 release increase and the microbial biomass C or N decrease by dry-wet cycles. There was no relationship showing significant correlation ($p > 0.05$).