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*Supplement of*

**Stoichiometrically coupled carbon and nitrogen cycling in the Microbial-MIneral Carbon Stabilization model version 1.0 (MIMICS-CN v1.0)**

**Emily Kyker-Snowman et al.**

*Correspondence to:* Emily Kyker-Snowman (ek2002@wildcats.unh.edu)

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Supplementary Figures

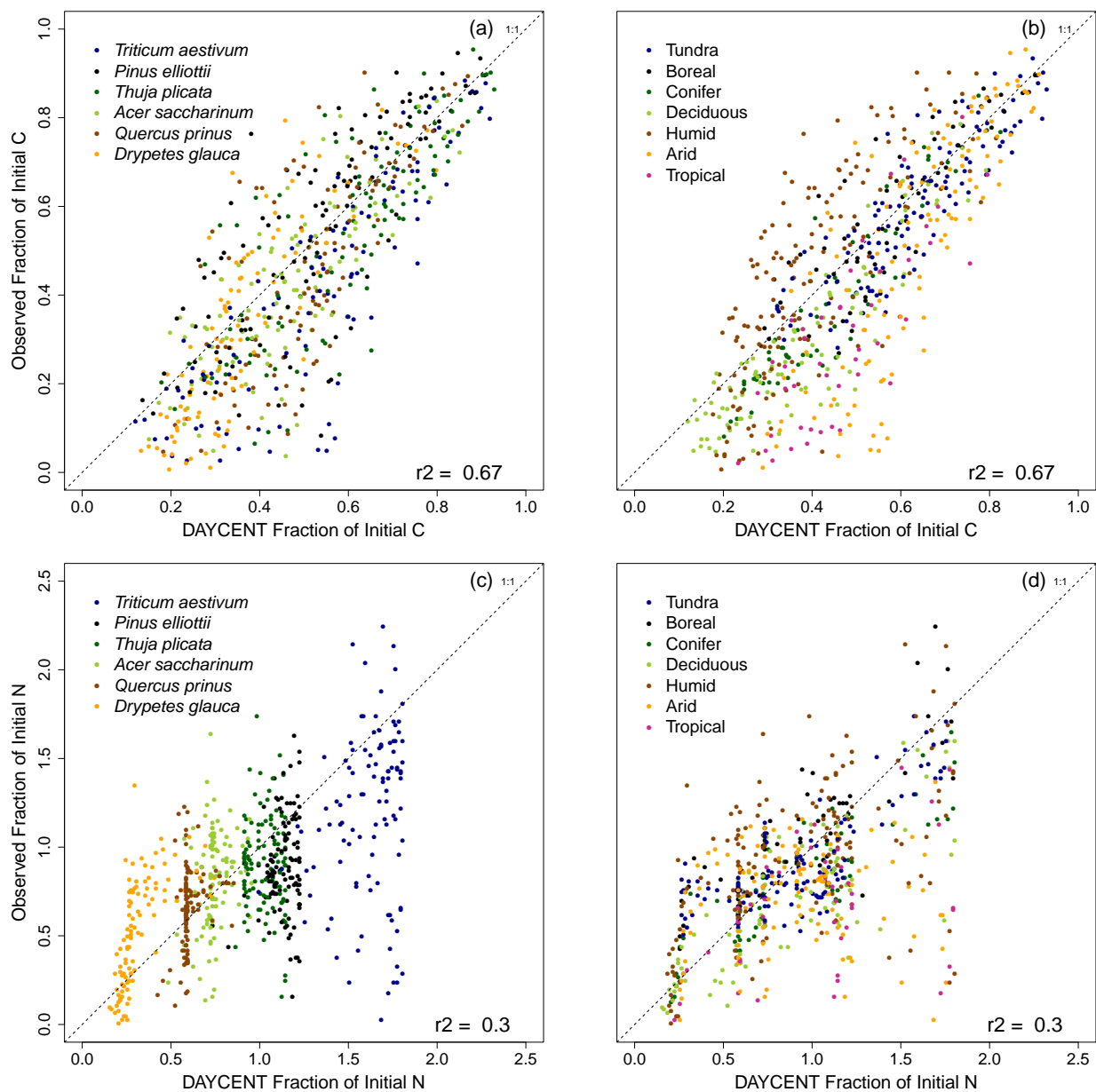
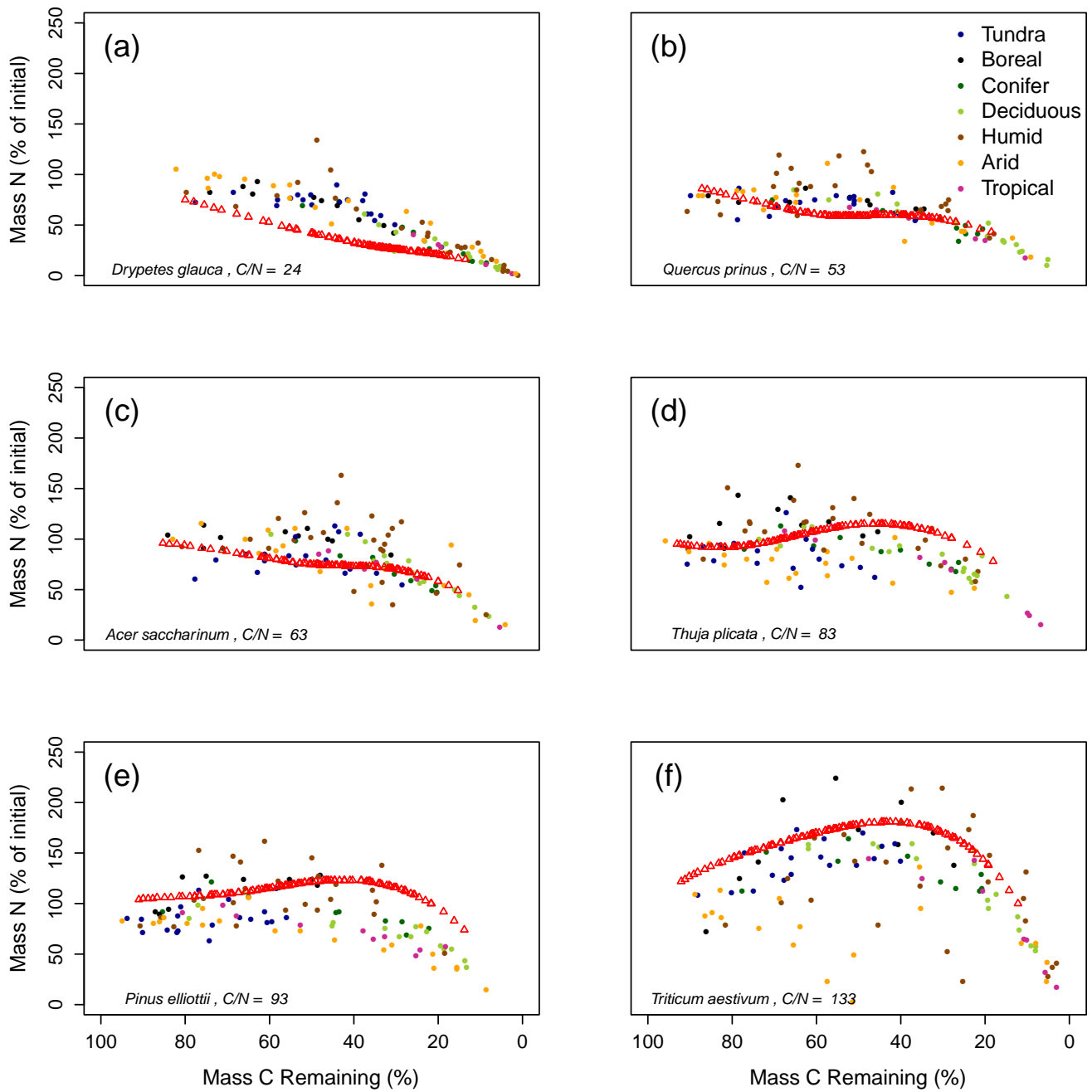


Figure S1. DAYCENT simulations of percent C remaining (top) and N remaining (bottom) in litterbags in the LIDET study versus observed values, colored by litter type (left) or biome (right). DAYCENT results are subset from simulations in Bonan et al. (2013) to match the sites included in MIMICS-CN simulations. Dashed line shows the 1:1 line.

5



**Figure S2. DAYCENT simulations of immobilization-mineralization thresholds across litters of different quality. Litter quality (in terms of C:N and lignin content) decreases from upper left panel to lower right panel. Red dots show model simulations of C losses vs N losses from litterbags in the LIDET study (from Bonan et al. 2013). Colored dots show observed C vs N losses across biomes.**