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APPENDIX B. Supplementary results: asymbiotic N-fixation rates recalculated with a range of published conversion factors, forest floor and soil ARA rates, and N-mineralization rates.

TABLE B1. Published $^{15}\text{N}_2$ calibrated ARA conversion rates (Acetylene fixed: Nitrogen fixed, mol:mol) for soil and litter (forest floor) and the corresponding across-site average for N-fixation rates given ARA data from the Klamath National Forest. Rates presented in this manuscript using the theoretical conversion rate of 4 are shown in the final, shaded row for comparison.

ARA: $^{15}\text{N}_2$ conversion	Sample material	Sample species/habitat	Source	Soil N-fixation rates (kg N ha ⁻¹ yr ⁻¹)	Litter/forest floor N-fixation rates (kg N ha ⁻¹ yr ⁻¹)
3.45	litter	<i>Metrocideros polymorpha</i>	(Ley and D'Antonio 1998)		0.09
3.52	litter	<i>Pseudotsuga menziesii</i>	(Heath et al. 1988)		0.09
3.69	litter	<i>Pseudotsuga menziesii</i>	(Silvester 1989)		0.09
3.9	litter	<i>Metrocideros polymorpha</i>	(Crews et al. 2000, Reed et al. 2007)		0.08
13.3	litter	<i>Dodonea viscosa</i>	(Ley and D'Antonio 1998)		0.02
1.34	soil	Woodland/grassland	(Ley and D'Antonio 1998)	2.5	
8.6	soil	Agriculture/fallow fields	(Hardy et al. 1973)	0.4	
4	litter, soil	Theoretical conversion rate	(Hardy et al. 1968)	0.8	0.08

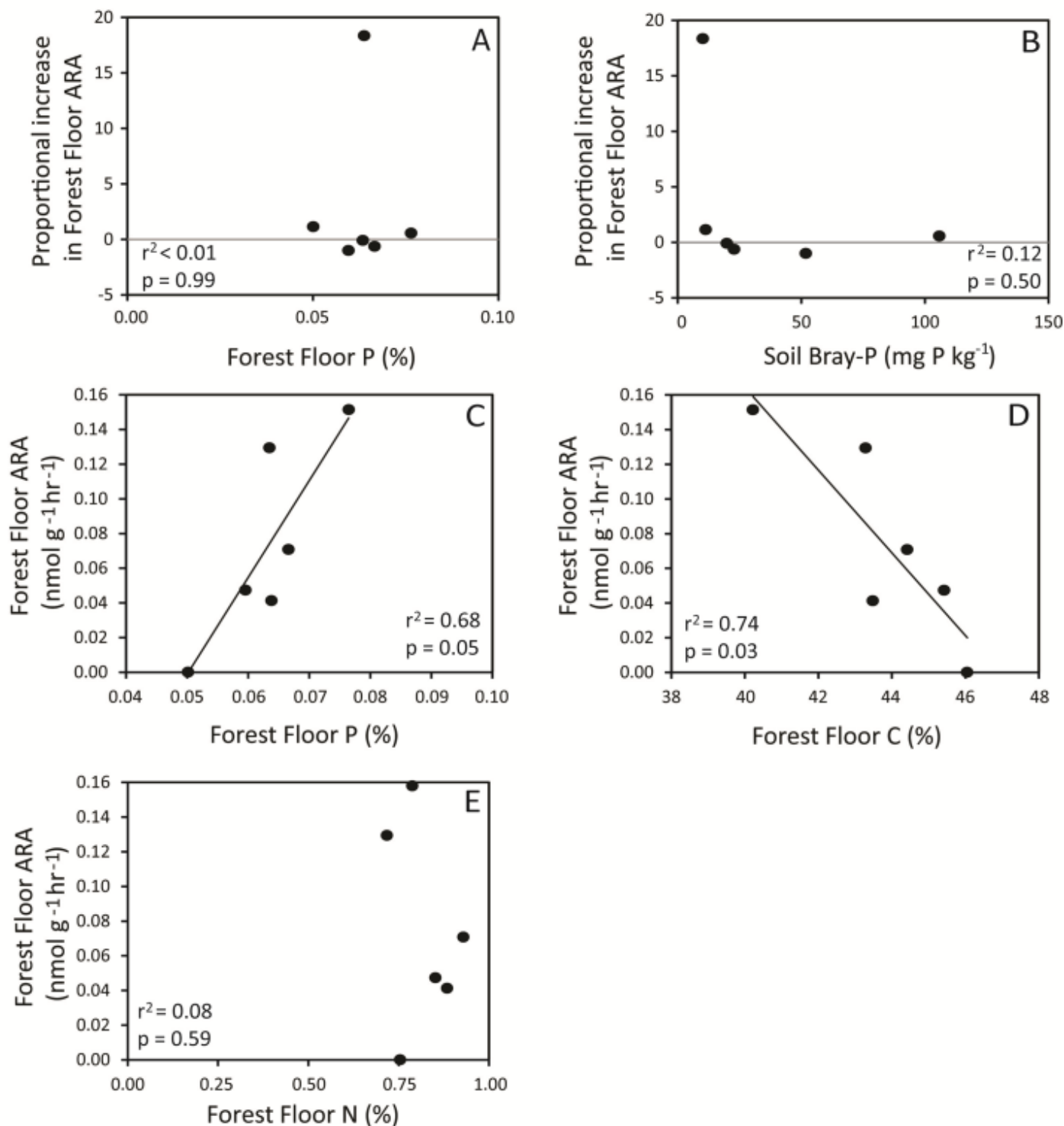


FIG. B1. Relationships between the proportional increase in forest floor acetylene reduction rates (ARA) due to phosphorus (P) fertilizer addition and background concentrations (i.e., control plot data only) of (A) forest floor P and (B) soil P (i.e., control plot data only). Relationships between control rates of forest floor ARA and forest floor (C) phosphorus, (D) carbon, and (E) nitrogen. Data points represent means for each of 6 sites. Note that ARA rates are converted to BNF using forest floor biomass or soil bulk density, and ARA conversion rates. Because we did not vary soil bulk density or conversion rates by site, relative differences between sites are the same for soil ARA and BNF. In contrast, relative differences between sites may vary between forest floor BNF and ARA due to site level variation in forest floor biomass.

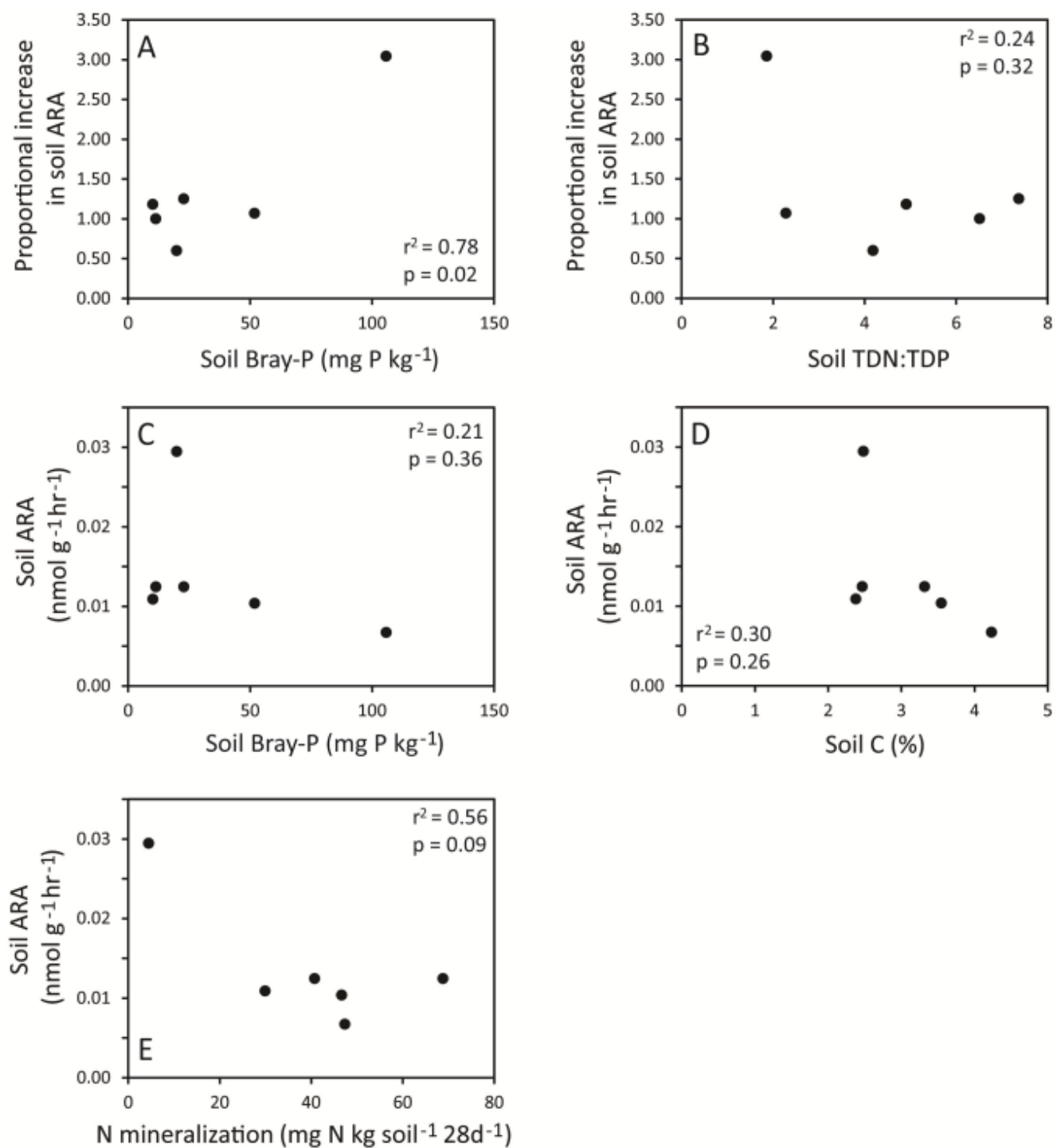


FIG. B2. Relationships between the proportional increase in soil acetylene reduction rates (ARA) due to phosphorus (P) fertilizer addition and background concentrations (i.e., control plot data only) of (A) soil Bray-P and (B) soil total dissolved nitrogen: total dissolved phosphorus (TDN:TDP). Relationships between control rates of soil ARA and soil (C) Bray-P, (D) % Carbon, and (E) net N mineralization. Data points represent means for each of 6 sites.

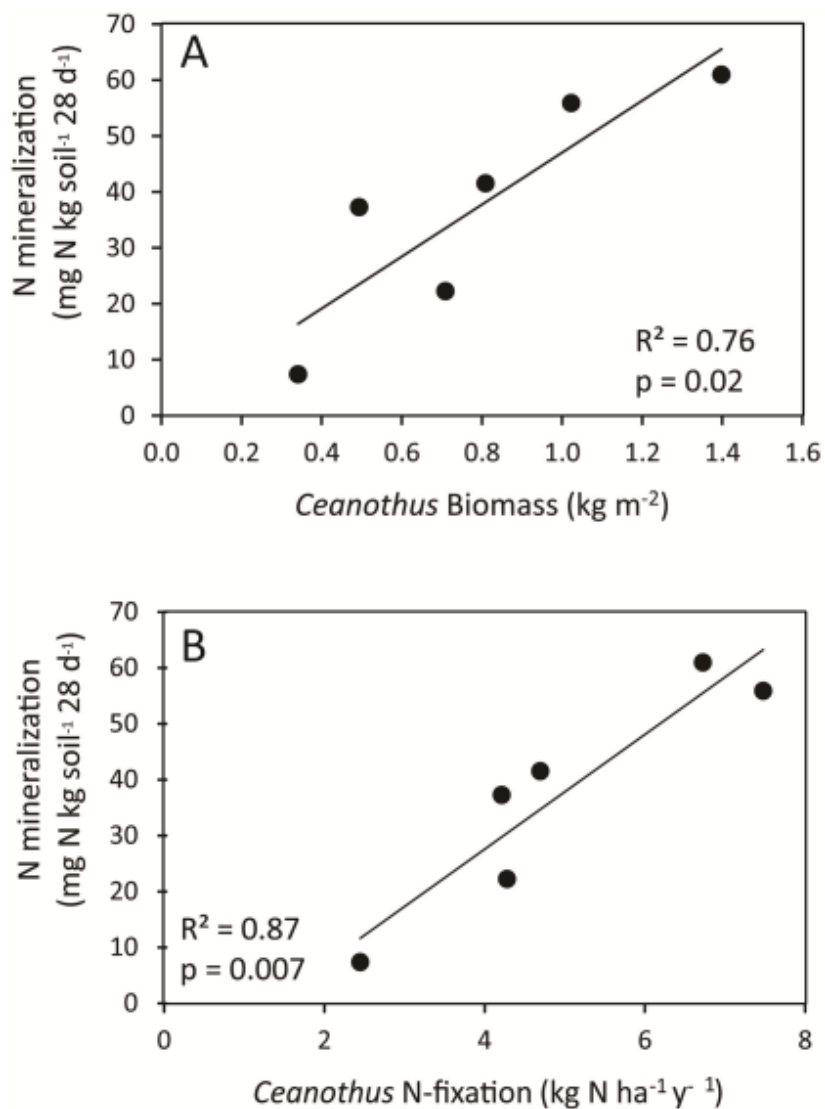


FIG. B3. The relationship between potential net N mineralization rates and (A) *Ceanothus* biomass and (B) *Ceanothus* N-fixation rates. Data points represent means for each of 6 sites.

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