Table 1: Marginal and Conditional pseudo R2 values for linear mixed models

model	R2m	R2c
Aboveground Biomass C ~ Invasion Stage * Time Since Fire + (1 | Article ID)	0.19	0.45
Belowground Biomass C ~ Time Since Fire + (Time Since Fire | Article ID)	0.36	0.87
Litter Carbon ~ Time Since Fire + (1 | Article ID)	0.08	0.45
Soil Organic C ~ Time Since Fire * Invasion Stage * Soil Depth + (1 | Article ID)	0.19	0.49
Soil Total C ~ Time Since Fire * Invasion Stage * Soil Depth + (1 | Article ID)	0.18	0.43

Note:

R2m: Marginal R-squared
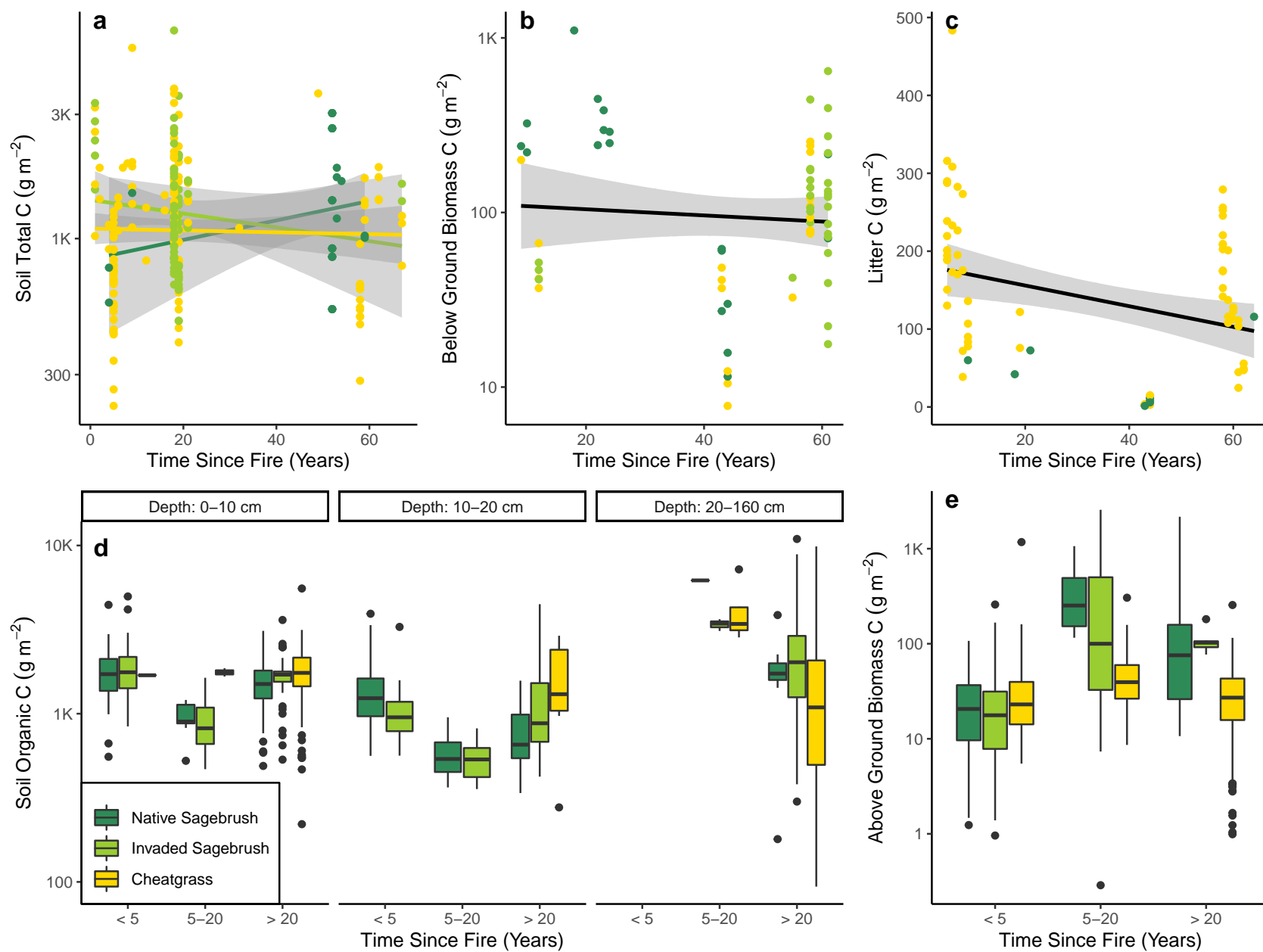
R2c: Conditional R-squared

Table 2: Linear mixed model results. Significance calculated using type II Wald Chi-squared tests

Variable	Chisq	Df	p-value
Aboveground Biomass C			
Vegetation Type	0.0818	2	0.9599
Time Since Fire	3.4856	2	0.175
Vegetation Type x Time Since Fire	41.3473	4	0 *
Belowground Biomass C			
Time Since Fire	6.5456	1	0.0105 *
Litter C			
Time Since Fire	10.0517	1	0.0015 *
Soil Organic C			
Time Since Fire	88.0277	2	0 *
Vegetation Type	14.5873	2	7e-04 *
Soil Depth	33.5038	2	0 *
Time Since Fire x Vegetation Type	13.7498	4	0.0081 *
Time Since Fire x Soil Depth	12.6250	3	0.0055 *
Vegetation Type x Soil Depth	17.0866	4	0.0019 *
Time Since Fire x Soil Depth	4.4934	4	0.3433
Soil Total C			
Time Since Fire	0.5129	1	0.4739
Vegetation Type	1.6069	2	0.4478
Soil Depth	17.3411	1	0 *
Time Since Fire x Vegetation Type	4.2915	2	0.117
Time Since Fire x Soil Depth	4.1336	1	0.042 *
Vegetation Type x Soil Depth	8.8297	1	0.003 *
Time Since Fire x Vegetation Type x Soil Depth	5.1538	1	0.0232 *

Table 3: Linear mixed model results.

	Dependent variable:
	'log(AGBC+1)'
vegInvaded Sagebrush	−0.146 (0.151)
vegCheatgrass	0.353** (0.151)
firecat5-20	2.755*** (0.878)
firecat>20	1.477** (0.741)
vegInvaded Sagebrush:firecat5-20	−0.819 (0.691)
vegCheatgrass:firecat5-20	−2.304*** (0.654)
vegInvaded Sagebrush:firecat>20	0.504 (0.720)
vegCheatgrass:firecat>20	−1.122*** (0.410)
Constant	2.951*** (0.649)
Observations	544
Log Likelihood	−743.237
Akaike Inf. Crit.	1,508.474
Bayesian Inf. Crit.	1,555.762
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 4: Linear mixed model results.

	Dependent variable:	
	'log(BGBC+1)'	'Litter C'
	(1)	(2)
timesincefire	−0.057** (0.022)	−1.142*** (0.360)
Constant	6.453*** (0.805)	121.499*** (31.256)
Observations	67	75
Log Likelihood	−78.670	−427.552
Akaike Inf. Crit.	169.341	863.104
Bayesian Inf. Crit.	182.569	872.374
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 5: Linear mixed model results.

	Dependent variable:
	'log(Soil Organic C)'
firecat5-20	−0.586*** (0.184)
firecat>20	−0.806*** (0.161)
vegInvaded Sagebrush	0.084 (0.143)
vegCheatgrass	−0.390 (0.526)
soil_depth10-20	−0.201 (0.150)
soil_depth20-160	0.075 (0.177)
firecat5-20:vegInvaded Sagebrush	−0.166 (0.241)
firecat>20:vegInvaded Sagebrush	0.173 (0.182)
firecat5-20:vegCheatgrass	0.626 (0.611)
firecat>20:vegCheatgrass	0.511 (0.529)
firecat5-20:soil_depth10-20	−0.301 (0.260)
firecat>20:soil_depth10-20	−0.182 (0.227)
firecat5-20:soil_depth20-160	1.060* (0.622)
vegInvaded Sagebrush:soil_depth10-20	−0.397** (0.202)
vegCheatgrass:soil_depth10-20	0.272 (0.222)
vegInvaded Sagebrush:soil_depth20-160	0.031 (0.201)
vegCheatgrass:soil_depth20-160	−0.447** (0.179)
firecat5-20:vegInvaded Sagebrush:soil_depth10-20	0.404 (0.341)
firecat>20:vegInvaded Sagebrush:soil_depth10-20	0.577** (0.295)
firecat5-20:vegInvaded Sagebrush:soil_depth20-160	−0.438 (0.693)
firecat5-20:vegCheatgrass:soil_depth20-160	−0.157 (0.740)
Constant	7.877*** (0.177)
Observations	702
Log Likelihood	−502.048
Akaike Inf. Crit.	1,052.097
Bayesian Inf. Crit.	1,161.391
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 6: Linear mixed model results.

	Dependent variable:
	log('Soil Total C')
timesincefire	0.011 (0.014)
vegInvaded Sagebrush	0.685 (0.439)
vegCheatgrass	−0.412 (0.763)
bottomdepth_cm	−0.027 (0.039)
timesincefire:vegInvaded Sagebrush	−0.021* (0.011)
timesincefire:vegCheatgrass	−0.030* (0.016)
timesincefire:bottomdepth_cm	0.0003 (0.001)
vegCheatgrass:bottomdepth_cm	0.065 (0.054)
timesincefire:vegCheatgrass:bottomdepth_cm	0.003** (0.001)
Constant	7.016*** (0.661)
Observations	243
Log Likelihood	−216.601
Akaike Inf. Crit.	457.201
Bayesian Inf. Crit.	499.118
Note:	*p<0.1; **p<0.05; ***p<0.01