

Supplementary material

Rice straw mulch for post-fire erosion control: assessing non-target effects on vegetation communities

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Table S1. AIC, delta AIC (dAIC) and relevant p-values for all conditional models tested

Conditional models for mulch cover, depth, their squared terms and all interactions were conducted only when mulch as a categorical variable was significant in the full model. Where the full models had a significant interaction, all treatment contrasts were tested and the conditional tests were only conducted by year for those years where mulch as a categorical variable was significant. Where mulch was significant as a main effect and there was no interaction in the full model (as for Douglas-fir), conditional tests were conducted for both years combined as in the full model. Models with dAIC < 2 were examined more closely and the *P*-values for the relevant variables are included. *P*-values in bold are significant at *P* < 0.05 or marginally significant at *P* < 0.10

Variable – year	Models tested	AIC	dAIC	Mulch cover	Mulch cover ²	Mulch depth	Mulch depth ²	Cover × depth
Nonnative forb cover – 2014								
	Mulch cover	–387.914	0	0.433				
	Mulch cover + Mulch cover ²	–385.914	2					
	Mulch depth	–387.376	0.538			0.787		
	Mulch depth + Mulch depth ²	–386.182	1.732			0.452	0.398	
	Mulch cover + Mulch depth	–387.58	0.334	0.134		0.218		
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	–383.736	4.178					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	–385.582	2.332					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	–380.696	7.218					
Nonnative forb cover – 2015								
	Mulch cover	–168.22	1.165	0.970				
	Mulch cover + Mulch cover ²	–166.393	2.9924					
	Mulch depth	–169.385	0			0.300		
	Mulch depth + Mulch depth ²	–167.385	2					
	Mulch cover + Mulch depth	–168.484	0.9014	0.291		0.148		
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	–165.286	4.0994					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	–166.535	2.8502					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	–161.628	7.7578					
Richness – 2014								
	Mulch cover	423.626	0.732	0.493				
	Mulch cover + Mulch cover ²	422.894	0	0.073	0.096			
	Mulch depth	424.026	1.132			0.786		
	Mulch depth + Mulch depth ²	425.548	2.654					
	Mulch cover + Mulch depth	424.542	1.648	0.22		0.29		
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	426.324	3.43					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	425.322	2.428					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	429.812	6.918					

Variable – year	Models tested	AIC	dAIC	P-values				
				Mulch cover	Mulch cover ²	Mulch depth	Mulch depth ²	Cover × depth
Nonnative richness – 2014								
	Mulch cover	289.296	1.958	0.246				
	Mulch cover + Mulch cover²	287.338	0	0.023	0.045			
	Mulch depth	290.606	3.268					
	Mulch depth + Mulch depth ²	289.53	2.192					
	Mulch cover + Mulch depth	289.488	2.15					
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	290.338	3					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	289.954	2.616					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	292.006	4.668					
Nonnative richness – 2015								
	Mulch cover	233.402	0.39	0.196				
	Mulch cover + Mulch cover ²	233.012	0	0.064	0.125			
	Mulch depth	234.842	1.83	0.831				
	Mulch depth + Mulch depth ²	236.51	3.498					
	Mulch cover + Mulch depth	235.052	2.04					
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	236.034	3.022					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	237.05	4.038					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	237.452	4.44					
Annual richness – 2014								
	Mulch cover	347.234	0.192	0.209				
	Mulch cover + Mulch cover ²	347.042	0	0.079	0.139			
	Mulch depth	348.818	1.776	0.916				
	Mulch depth + Mulch depth ²	349.036	1.994	0.199	0.182			
	Mulch cover + Mulch depth	348.042	1	0.095		0.274		
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	350.41	3.368					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	348.832	1.79	0.053		0.438		0.270
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	354.092	7.05					
Douglas fir – 2014								
	Mulch cover	127.2044	0.1348	0.758				
	Mulch cover + Mulch cover ²	128.7798	1.7102	0.716	0.646			
	Mulch depth	127.0696	0			0.404		
	Mulch depth + Mulch depth ²	128.975	1.9054			0.976	0.701	
	Mulch cover + Mulch depth	129.0612	1.9916	0.645		0.399		
	Mulch cover + Mulch cover ² + Mulch depth + Mulch depth ²	129.5854	2.5158					

Variable – year	Models tested	AIC	dAIC	<i>P</i> -values				
				Mulch cover	Mulch cover ²	Mulch depth	Mulch depth ²	Cover × depth
	Mulch cover + Mulch depth + Mulch cover × Mulch depth	130.819	3.7494					
	Mulch cover + Mulch depth + Mulch cover × Mulch depth + Mulch cover ² + Mulch depth ² + Mulch cover ² × Mulch depth ²	132.01	4.9404					

Table S2. Summary data for conifer seedling density (seedlings/ha) by treatment and year

Frequency is presence or absence of one or more seedlings across plots. The 2015 data comes from a subsample (72) of plots 134 installed in 2014

Year	Seedlings per hectare					
Treatment	Species	Minimum	Maximum	Mean (s.e.)	Median	Frequency
2014						
Mulched	White fir	0.00	17166.67	1278.85 (511.82)	0	0.35
	Incense cedar	0.00	3500.00	80.13 (67.5)	0	0.08
	Sugar pine	0.00	1500.00	70.51 (34.05)	0	0.15
	Ponderosa pine	0.00	2833.33	243.59 (69.33)	0	0.38
	Douglas-fir	0.00	12666.67	625 (304.29)	0	0.25
Unmulched	White fir	0.00	378166.67	8949.19 (4892.55)	0	0.29
	Incense cedar	0.00	1500.00	65.04 (24.5)	0	0.13
	Sugar pine	0.00	2833.33	134.15 (48.86)	0	0.15
	Ponderosa pine	0.00	5500.00	455.28 (109.79)	83.33	0.50
	Douglas-fir	0.00	24333.33	668.7 (365.4)	0	0.17
2015						
Mulched	White fir	0.00	10166.67	958.33 (366.86)	0	0.44
	Incense cedar	0.00	3333.33	101.85 (92.79)	0	0.06
	Sugar pine	0.00	500.00	37.04 (16.41)	0	0.17
	Ponderosa pine	0.00	3833.33	240.74 (114.52)	0	0.31
	Douglas-fir	0.00	7000.00	439.81 (255.03)	0	0.22
Unmulched	White fir	0.00	15333.33	865.74 (462.04)	0	0.19
	Incense cedar	0.00	166.67	9.26 (6.45)	0	0.06
	Sugar pine	0.00	500.00	23.15 (16.47)	0	0.06
	Ponderosa pine	0.00	8000.00	365.74 (225.06)	0	0.36
	Douglas-fir	0.00	6666.67	245.37 (189.62)	0	0.08