

Article

Edge of Field Runoff Analysis following Grazing and Silvicultural Best Management Practices in Northeast Texas

Kevin Wagner ¹, Lucas Gregory ², Jason A. Gerlich ^{2,*}, Edward C. Rhodes ², Stephanie deVilleneuve ²

¹ Oklahoma Water Resources Center, 501 Athletic Ave, Stillwater, OK 74078, USA; water@okstate.edu

² Texas A&M AgriLife Research, Texas Water Resources Institute, 1001 Holleman Drive East, College Station, TX 77843, USA; twri@tamu.edu

* Author to whom correspondence should be addressed. : jason.gerlich@ag.tamu.edu

Table S1. Nutrient (kg/ha) and *E. coli* (MPN/100mL) loads for each sampling location. Letter A indicates prescribed grazing sites and letter B indicates silviculture sites.

Site		Loading kg/ha					MPN/ha
		NNN	TKN	OP	P	TSS	<i>E. coli</i>
1A	Total	1.77	19.34	11.97	13.28	144.75	4.67E+12
	Mean	0.0982	1.2891	0.6651	0.8856	12.063	3.34E+11
	Median	0.0413	0.3433	0.2768	0.3365	6.138	1.21E+11
	SD	0.2337	2.0107	0.98	1.1607	13.971	5.25E+11
	<i>n</i>	18	15	18	15	12	14
2A	Total	0.2	1.63	1.27	1.37	244.28	1.57E+10
	Mean	0.0399	0.3262	0.2543	0.2746	48.856	3.13E+09
	Median	0.012	0.2449	0.1307	0.1462	11.387	2.62E+09
	SD	0.0562	0.3702	0.3234	0.3246	92.899	1.42E+09
	<i>n</i>	5	5	5	5	5	5
3A	Total	2.23	8.11	0.13	0.64	186.05	9.18E+10
	Mean	0.2031	0.7375	0.0122	0.0583	20.673	8.34E+09
	Median	0.1221	0.4389	0.006	0.0474	4.7515	6.09E+09
	SD	0.1911	0.7256	0.0127	0.0624	40.894	8.01E+09
	<i>n</i>	11	11	11	11	9	11
4A	Total	1.66	4.76	0.12	0.43	167.29	1.33E+11
	Mean	0.2365	0.6803	0.0177	0.0613	41.823	1.90E+10
	Median	0.1061	0.4928	0.0109	0.0518	36.461	5.49E+09
	SD	0.2784	0.7135	0.0205	0.0551	40.55	2.38E+10
	<i>n</i>	7	7	7	7	4	7
1B	Total	1.09	13.69	8.63	9.09	155.73	1.62E+12
	Mean	0.0643	0.8554	0.5395	0.6063	11.979	1.27E+11
	Median	0.0403	0.2996	0.2397	0.3167	7.6489	5.75E+10
	SD	0.0661	1.164	0.6415	0.6579	12.71	2.12E+11
	<i>n</i>	17	16	16	15	13	13
2B	Total	0.63	2.80	1.57	1.63	20.49	5.11E+11
	Mean	0.0528	0.28	0.1309	0.1629	2.9271	7.30E+10
	Median	0.0384	0.1523	0.0426	0.0992	1.9674	3.95E+09
	SD	0.0661	0.3134	0.2046	0.1934	2.8429	1.84E+11
	<i>n</i>	12	10	12	10	7	7
3B	Total	0.56	4.59	2.93	3.21	43.72	1.20E+12
	Mean	0.0264	0.2548	0.1545	0.1782	3.6437	8.56E+10
	Median	0.0136	0.1426	0.0775	0.1368	2.0821	5.60E+09
	SD	0.0337	0.3044	0.2355	0.2292	3.8691	2.04E+11
	<i>n</i>	21	18	19	18	12	14
4B	Total	2.66	21.71	9.71	10.72	1,046.82	2.43E+13
	Mean	0.1109	0.9044	0.4222	0.4466	55.096	1.28E+12
	Median	0.0658	0.3557	0.1216	0.1469	12.262	1.05E+11
	SD	0.2284	1.6732	0.6804	0.7509	94.918	4.11E+12
	<i>n</i>	24	24	23	24	19	18

Table S2. Linear regression results of treatment effect on variable .

Variable	Treatment	Adjusted R ²	P-Value
Runoff	Grazing	.71	0.50
	Silviculture	.16	0.45
Total Suspended Sediment	Grazing	.67	0.00253*
	Silviculture	.61	0.85
<i>E. coli</i>	Grazing	.49	0.06210
	Silviculture	.38	0.47
TKN	Grazing	.85	0.00246*
	Silviculture	.86	0.00144*
NNN	Grazing	.55	0.02080*
	Silviculture	.37	0.00844*
P	Grazing	.70	0.87
	Silviculture	.61	0.09912
OP	Grazing	.73	0.24
	Silviculture	.54	0.01250*

* Denotes significance $p < .05$.

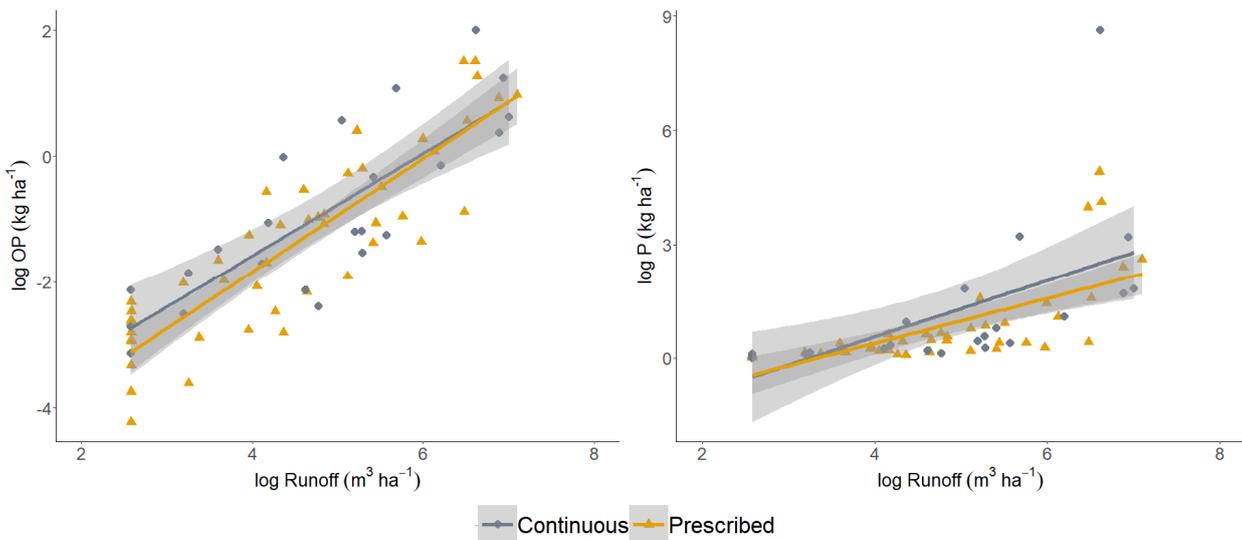


Figure S1. Results from a general linear model of prescribed versus continuous grazing for nutrients, Ortho-Phosphate (OP) and Total Phosphate (P) loads (kg ha⁻¹), per storm runoff volume (m³ ha⁻¹) during the project sampling period. Orange triangles and lines represent prescribed grazing while gray squares and lines represent continuous grazing. The grey shading represents the 95% confidence interval.

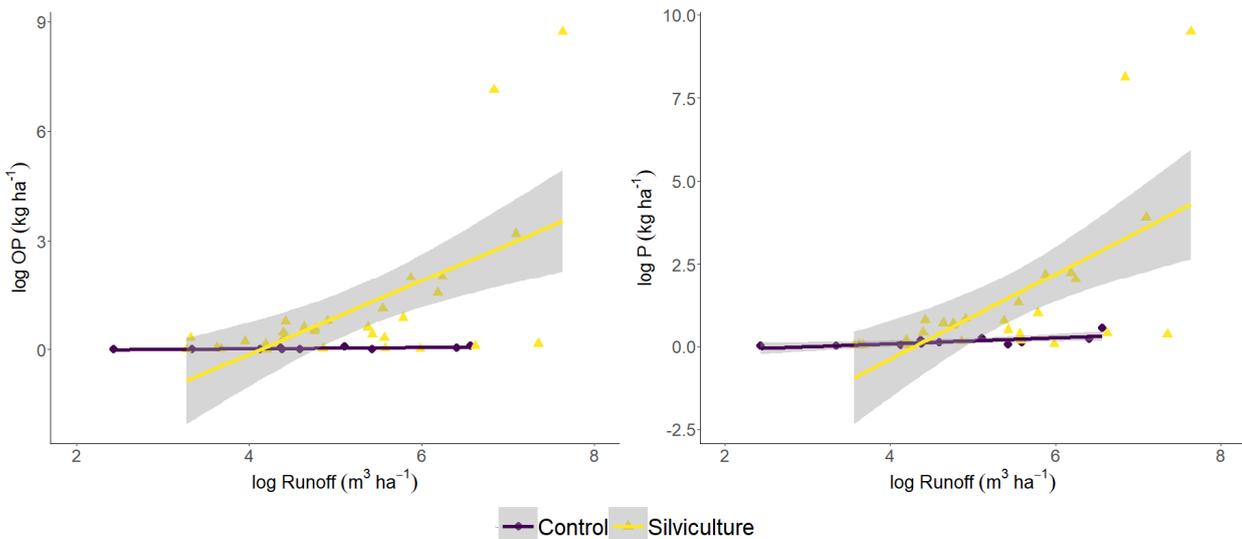


Figure S2. Results from a general linear model of natural forest revegetation (control) versus silvicultural treatments for nutrients, Ortho-phosphate (OP) and Total Phosphate (P) loads (kg ha⁻¹), per storm runoff volume (m³ ha⁻¹) during the project sampling period. Yellow triangles and lines represent silviculture while purple squares and lines represent control. The grey shading represents the 95% confidence interval.