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Livestock grazing and topographic site effects on grassland plant communities after long-term grazing cessation

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Supplementary Tables

Table 1. PERMANOVA pair-wise contrasts of years within each microsite

	Year comparison	F	R²	Adjusted p
<i>Summit</i>	2015 – 2016	8.79	0.16	0.04
	2015 – 2017	6.8	0.15	0.04
	2016 – 2017	5.8	0.13	0.04
<i>Backslope</i>	2015 – 2016	3.89	0.08	0.07
	2015 – 2017	5.25	0.10	0.04
	2016 – 2017	3.07	0.07	0.07
<i>Toeslope</i>	2015 – 2016	5.64	0.11	0.04
	2015 – 2017	13.19	0.20	0.04
	2016 – 2017	5.91	0.10	0.04

Table 2. ANOVA output for native and invasive cover and richness

Model	Factor	d.f.	Sum Sq	Mean Sq	F	P	R²
<i>Native Cover</i>	Site	2	467	233.5	1.30	0.281	13.1
	Grazing	1	763	762.9	4.18	0.042	21.3
	Year	2	255	3127.5	17.3	0.322	7.1
	Site x Grazing	2	123	61.7	0.34	0.714	3.4
	Site x Year	4	211	52.7	0.29	0.885	5.8
	Grazing x Year	2	378	188.8	1.03	0.358	10.5
	Site x Grazing x Year	4	369	92.2	0.51	0.732	10.3
<i>Invasive Cover</i>	Site	2	1558	779	2.27	0.106	0.0
	Grazing	1	9969	9969	29.04	<0.001	14.8
	Year	2	2699	1349	3.93	0.404	4.0
	Site x Grazing	2	208	104	0.30	0.739	0.0
	Site x Year	4	2011	503	2.92	0.223	2.9
	Grazing x Year	2	3131	156	2.47	0.075	4.6
	Site x Grazing x Year	4	1486	372	1.08	0.367	2.2
<i>Native Richness</i>	Site	2	10.35	5.175	6.21	0.224	6.3
	Grazing	1	0.56	0.56	0.67	0.415	0.3
	Year	2	43.86	21.93	26.23	0.006	26.8
	Site x Grazing	2	2.36	1.18	1.42	0.243	1.4
	Site x Year	4	7.01	1.75	2.10	0.08	4.3
	Grazing x Year	2	0.14	0.07	0.08	0.919	0.0
	Site x Grazing x Year	4	1.36	0.34	0.41	0.803	1.0
<i>Invasive Richness</i>	Site	2	13.5	6.76	1.84	0.16	1.5
	Grazing	1	11.5	11.46	3.13	0.08	1.4
	Year	2	3.5	1.7	0.47	0.21	0.4
	Site x Grazing	2	11.7	5.84	1.59	0.21	1.4
	Site x Year	4	16.7	4.16	1.13	0.34	2.1
	Grazing x Year	2	16.4	8.19	2.23	0.11	2.1
	Site x Grazing x Year	4	11.5	2.87	0.78	0.54	1.4

Supplementary Figure

Fig. S1. Plant community data were collected from four 1-m² subplots within each plot.

Plot pairs

■ summit
■ backslope
■ toeslope

Mine Shaft

Example plot pair

grazed

ungrazed

