

David Little Livestock Range Management Endowment

AT THE UNIVERSITY OF IDAHO

2012 Project Progress Report:

Dynamics of grazed and ungrazed slickspot peppergrass populations on the Snake River Plain

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PRELIMINARY RESULTS for 2012:

Sampling occurred from May 31 to June 7, 2012. Data collected on the slickspots included: number of *Lepidium papilliferum* plants (Crosette, annual flowering, or biennial flowering), evidence of cattle trampling (% slickspot covered by hoof prints) and presence of ant colonies (P/A). Fifteen sites containing 252 slickspots were sampled during June 2012 (114 enclosure and 138 grazed).

Five sites are located within cattle exclosures (Holding Pen Seeded, Holding Pen Native, Airbase, Three Creek and Juniper Butte). All exclosures except Juniper Butte were part of a previous study and have been sampled annually since 2003. Ten grazed sites were sampled in 2012. Sampling of the grazed sites began in 2010 for the Holding Pasture and South Clover sites and these have been re-sampled in 2011 and 2012. In 2011 the Juniper Butte exclosure and 8 grazed sites were added to the study. During 2012 additional slickspots were identified and sampled for some sites which had few occupied slickspots in 2011.

Populations of *Lepidium* generally were improved in 2012 as compared to 2011. Mean flowering plant and total plant density increased in both the exclosure and grazed sites (Figure 1; Table 1). Mean density per slickspot remains greater on the grazed slickspots for both flowering plants and total plants (Figure 1). Density of flowering plants is perhaps the most important single measure as these are the plants that potentially will add seed to the seed bank.

The individual responses of sites and slickspots within sites continued to be variable (Table 1). Populations improved on 2 of the 5 exclosure sites, and 6 of the 10 grazed sites. However, populations declined on 6 of the sites (2 exclosure and 4 grazed). The population in the Three Creek Exclosure remains at a precarious level with only 1 plant found on the site's slickspots in both 2011 and 2012. In 2011, one additional *Lepidium* plant was found in the 'upland' and not within a slickspot. All slickspots sampled have a history of known *Lepidium papilliferum* occupancy. However, many of these did not have actively growing plants in 2012.

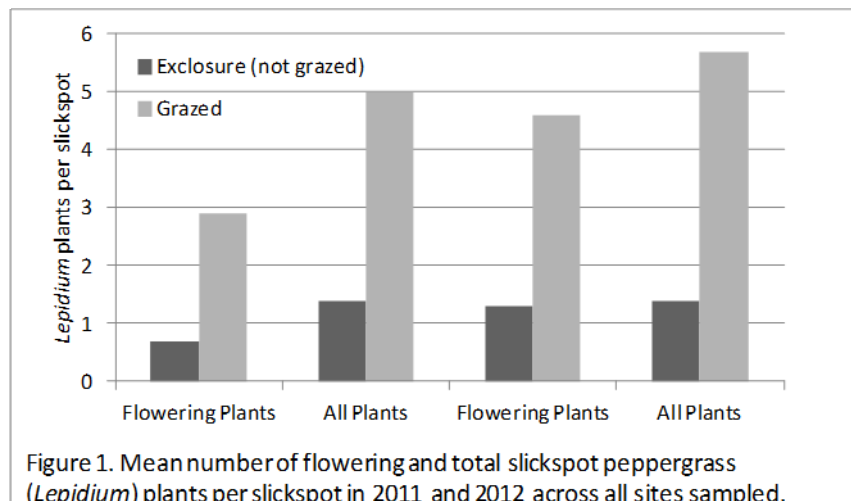


Table 1. Mean number of flowering (annual + biennial) and total [flowering + non-flowering (rosette)] *Lepidium* plants per slickspot for each of 15 study sites sampled in 2011 and 2012. Density values are based on all slickspots sampled.

Site	2010		2011			2012			Trend 2011-2012
	Total Flower	Total	Total Flower	Total	Occupied Slickspots (%)	Total Flower	Total	Occupied Slickspots (%)	
Holding Pen Seeded Exclosure (n=22)	5	58	0	2	9.1	0	0	0.0	↘
Ave/slickspot	0.25	2.90	0.00	0.09		0.00	0.00		
Holding Pen Native Exclosure (n=23)	176	696	50	106	56.5	111	121	69.6	↗
Ave/slickspot	8.80	34.80	2.2	4.6		4.8	5.3		
Three Creek Exclosure (n=22)	1	1	1	1	4.5	1	1	4.5	→
Ave/slickspot	0.05	0.05	0.1	0.15		0.1	0.1		
Airbase Exclosure (n=22)	34	52	17	24	27.3	22	24	36.4	↗
Ave/slickspot	1.70	2.60	0.8	1.1		1.0	1.1		
Juniper Butte Exclosure (n=25)			13	29	28.0	12	17	16.0	↘
Ave/slickspot			0.5	1.2		0.5	0.7		
Holding Pasture (n=21)	310	473	15	39	76.2	80	81	90.5	↗
Ave/slickspot	14.76	22.52	0.7	1.9		3.8	4.1		
Northwest (n=25)	775	1966	23	36	60.9	109	125	92.0	↗
Ave/slickspot	33.70	85.48	1.0	1.6		4.4	5.0		
South Clover (n=13)			0	3	50.0	82	103	92.3	↗
Ave/slickspot			0.0	1.5		6.3	7.9		
Juniper Butte (n=16)			54	78	94.1	24	31	50.0	↘
Ave/slickspot			3.6	5.2		1.5	1.9		
Juniper Butte South (n=17)			7	20	5.4	57	75	100.0	↗
Ave/slickspot			1.4	4.0		3.4	4.4		
Clover Butte (n=20)			141	250	100.0	39	39	70.0	↘
Ave/slickspot			8.3	14.7		1.9	1.9		
Airbase Grazed (n=3)			10	11	100	6	6	66.7	↘
Ave/slickspot			5.0	5.5		2.0	2.0		
Inside Desert (n=4)			1	3	100	9	11	100	↗
Ave/slickspot			0.5	1.5		2.3	2.8		
Three Creek New (n=3)			17	24		13	13		↘
Ave/slickspot			8.5	12.0		4.3	4.3		
Middle Butte (n=16)			1	2	100	215	298	100	↗
Ave/slickspot			0.5	1.0		13.4	18.6		

PROCEDURES FOR 2013:

All sites will be re-sampled in 2013. Additional slickspots, if available, will be added in 2013. These data have become the baseline against which future changes in grazed and ungrazed *Lepidium papilliferum* populations will be compared. It has been suggested by others that the grazed populations will be less stable and decline with respect to the changes observed for exclosure populations.