Table 9. Frequency of plant species in 25 x 25 cm frames on loamy overflow ecological sites in 1988 and 2012 and their response to long term grazing. For many species the grazing response is more obvious when comparing intermediate years. Click on the plant name in this table to see a graph of the changes in abundance over time on each of the different treatments.

	Treatment										
	Ungrazed		Light		Moderate		Heavy		Extreme		
Scientific Name - Common name	1988	2012	1988	2012	1988	2012	1988	2012	1988	2012	Grazing Response
Poa pratensis L. - Kentucky bluegrass	63.33	98.67	62.00	98.67	73.33	98.00	58.67	98.00	72.67	94.00	increase
Symphoricarpos occidentalis Hook. - buckbrush	53.33	59.33	55.33	45.33	49.33	44.00	61.33	48.00	65.33	13.33	decrease
Bromus inermis Leyss. - smooth brome	33.33	94.67	25.33	76.67	31.33	54.00	19.33	52.00	32.00	46.00	decrease
Oligoneuron rigidum (L.) Small var. *humile* (Porter) Nesom - stiff	32.00	26.67	40.67	41.33	28.00	68.67	9.33	88.67	12.67	49.33	increase-decrease
Symphyotrichum ericoides (L.) Nesom var. *ericoides* - heath aster	35.33	42.67	23.33	36.67	32.00	46.67	34.67	49.33	40.00	39.33	increase
Artemisia ludoviciana Nutt. - cudweed sagewort	34.00	34.67	22.67	16.67	22.00	34.67	23.33	44.67	39.33	27.33	increase
Carex obtusata Lilj. - obtuse sedge	21.33	28.67	16.00	26.67	23.33	33.33	26.00	38.67	11.33	52.67	increase
Helianthus pauciflorus Nutt. ssp. *pauciflorus* - stiff sunflower	38.67	38.67	30.00	28.00	47.33	20.00	64.67	18.00	49.33	1.33	decrease
Achillea millefolium L. - western yarrow	6.67	8.67	8.00	12.67	2.67	46.67	3.33	53.33	2.67	92.00	increase
Taraxacum officinale F.H. Wigg. - common dandelion	0.00	11.33	0.00	29.33	0.00	68.67	0.00	69.33	0.00	92.67	increase
Carex inops Bailey ssp. *heliophila* (Mackenzie) Crins - sun sedge	46.67	17.33	30.67	14.00	34.00	24.00	30.67	24.67	63.33	81.33	increase
Elymus repens (L.) Gould - quackgrass	20.67	18.67	18.67	35.33	10.00	38.67	10.67	34.67	14.00	44.67	
Ambrosia psilostachya DC. - western ragweed	10.00	16.67	16.00	40.00	21.33	62.00	11.33	54.67	1.33	2.00	increase-decrease
Oxalis stricta L. - yellow wood sorrel	0.00	0.67	0.00	8.67	0.00	6.67	0.00	20.67	0.00	47.33	increase
Andropogon gerardii Vitman - big bluestem	10.00	2.00	41.33	5.33	38.00	34.00	17.33	21.33	5.33	3.33	
Galium boreale L. - northern bedstraw	8.00	22.00	6.00	12.00	10.67	18.00	5.33	8.00	16.00	12.00	
Pascopyrum smithii (Rydb.) A. Löve - western wheatgrass	14.67	2.67	4.67	5.33	4.67	19.33	1.33	35.33	11.33	42.67	increase
Solidago canadensis L. - Canada goldenrod	6.00	10.00	18.67	13.33	3.33	28.67	12.00	8.00	2.67	1.33	increase-decrease
Cerastium arvense L. - prairie chickweed	0.00	0.00	0.00	1.33	0.00	8.67	0.00	9.33	0.00	54.00	increase
Glycyrrhiza lepidota Pursh - wild licorice	12.00	24.00	12.67	34.00	4.67	2.00	8.67	4.67	0.00	0.00	increase-decrease
Viola pedatifida G. Don - larkspur violet	0.67	5.33	0.67	10.67	1.33	17.33	1.33	28.00	0.00	34.00	increase
Cirsium flodmanii (Rydb.) Arthur - Flodman's thistle	4.67	16.67	1.33	15.33	8.67	11.33	8.67	9.33	3.33	12.67	
Rosa arkansana Porter - prairie rose	8.67	22.67	7.33	12.67	10.00	10.67	13.33	2.67	26.00	2.67	decrease
Grindelia squarrosa (Pursh) Dun. - curly-cup gumweed	0.00	0.00	0.00	1.33	0.00	21.33	0.67	33.33	4.67	55.33	increase
Elymus caninus (L.) L. - slender wheatgrass	12.00	8.00	10.00	18.67	10.67	14.67	21.33	23.33	12.67	32.67	increase
Nassella viridula (Trin.) Barkworth - green needlegrass	3.33	0.67	13.33	2.67	3.33	8.67	8.67	8.00	9.33	28.00	increase
Solidago missouriensis Nutt. - Missouri goldenrod	1.33	7.33	0.00	2.67	3.33	9.33	2.00	5.33	4.00	19.33	increase
Agrostis hyemalis (Walt.) B.S.P. - ticklegrass	0.00	0.67	0.00	4.67	0.00	18.67	0.00	19.33	0.00	53.33	increase
Androsace occidentalis Pursh - western rock jasmine	0.00	0.00	0.00	2.00	0.00	2.67	0.00	3.33	0.00	16.67	increase
Medicago lupulina L. - black medic	0.00	10.67	0.00	5.33	0.00	10.00	0.00	26.67	0.00	43.33	invader
Astragalus agrestis Dougl. ex G. Don - field milk-vetch	0.67	1.33	0.67	0.67	0.00	4.67	2.00	5.33	2.00	34.67	increase
Solidago mollis Bartl. - soft goldenrod	2.67	4.00	2.00	14.00	6.00	2.00	0.67	3.33	0.67	2.00	increase-decrease
Carex lanuginosa Michx. - wooly sedge	0.00	13.33	0.67	22.00	1.33	2.00	0.00	2.67	0.00	2.00	increase-decrease
Euphorbia serpyllifolia Pers. - thyme-leaved spurge	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00	16.00	increase
Conyza canadensis (L.) Cronq. - horse-weed	0.00	0.00	0.00	0.00	0.67	0.00	0.67	0.00	0.00	0.00	increase
Spartina pectinata Link - prairie cordgrass	0.00	4.67	0.00	13.33	0.00	0.67	0.00	0.00	1.33	0.00	increase-decrease
Anemone cylindrica A. Gray - candle anemone	0.00	2.67	0.00	6.67	0.00	10.67	0.00	8.00	0.00	6.67	increase-decrease
Muhlenbergia racemosa (Michx.) B.S.P. - marsh muhly	0.67	2.00	0.67	4.00	2.00	0.67	4.67	2.67	0.00	0.00	increase-decrease
Carex praegracilis W. Boott. - clustered field sedge	0.00	1.33	0.00	18.67	0.00	3.33	0.00	1.33	0.00	2.67	increase-decrease
Artemisia frigida Willd. - fringed sagewort	6.00	0.00	0.00	0.00	0.67	0.00	0.67	0.00	0.00	2.67	increase
Carex eleocharis Bailey. - needle-leaved sedge	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	
Trifolium repens L. - white clover	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	48.00	invader
Juncus balticus Willd. - Baltic rush	0.00	0.00	2.00	15.33	0.00	0.00	0.00	0.00	0.00	0.00	increase-decrease
Erigeron philadelphicus L. - Philadelphia fleabane	0.00	0.00	0.00	1.33	0.00	2.67	0.00	0.67	0.00	0.00	increase
Penstemon gracilis Nutt. - slender beardtongue	0.00	0.00	0.00	0.67	0.00	0.67	0.00	0.00	0.00	14.67	increase
Campanula rotundifolia L. - harebell	0.00	0.00	0.00	0.00	0.67	0.00	0.67	0.00	0.00	0.00	increase-decrease
Sisyrinchium montanum Greene. - blue-eyed grass	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	increase-decrease
Polygonum ramosissimum Michx. - bushy knotweed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.67	invader
Agrimonia striata Michx. - striate agrimony	0.00	0.00	0.00	2.67	0.00	2.67	0.00	0.00	0.00	0.00	increase-decrease
Erysimum inconspicuum (S. Wats.) MacM. - smallflower wallflower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	increase
Packera plattensis (Nutt.) W.A. Weber & A. Löve - prairie ragwort	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	increase-decrease
Draba nemorosa L. - yellow whitlowort	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	increase
Lithospermum incisum Lehm. - yellow puccoon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.67	invader
Poa palustris L. - fowl bluegrass	0.00	0.67	0.00	5.33	0.00	0.00	0.00	0.00	0.00	0.00	increase-decrease
Sonchus arvensis L. - field sow thistle	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	decrease
Lepidium densiflorum Schrad. - peppergrass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	invader
Liatris ligulistylis (A. Nels.) K. Schum. - round-headed blazing star	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	decrease