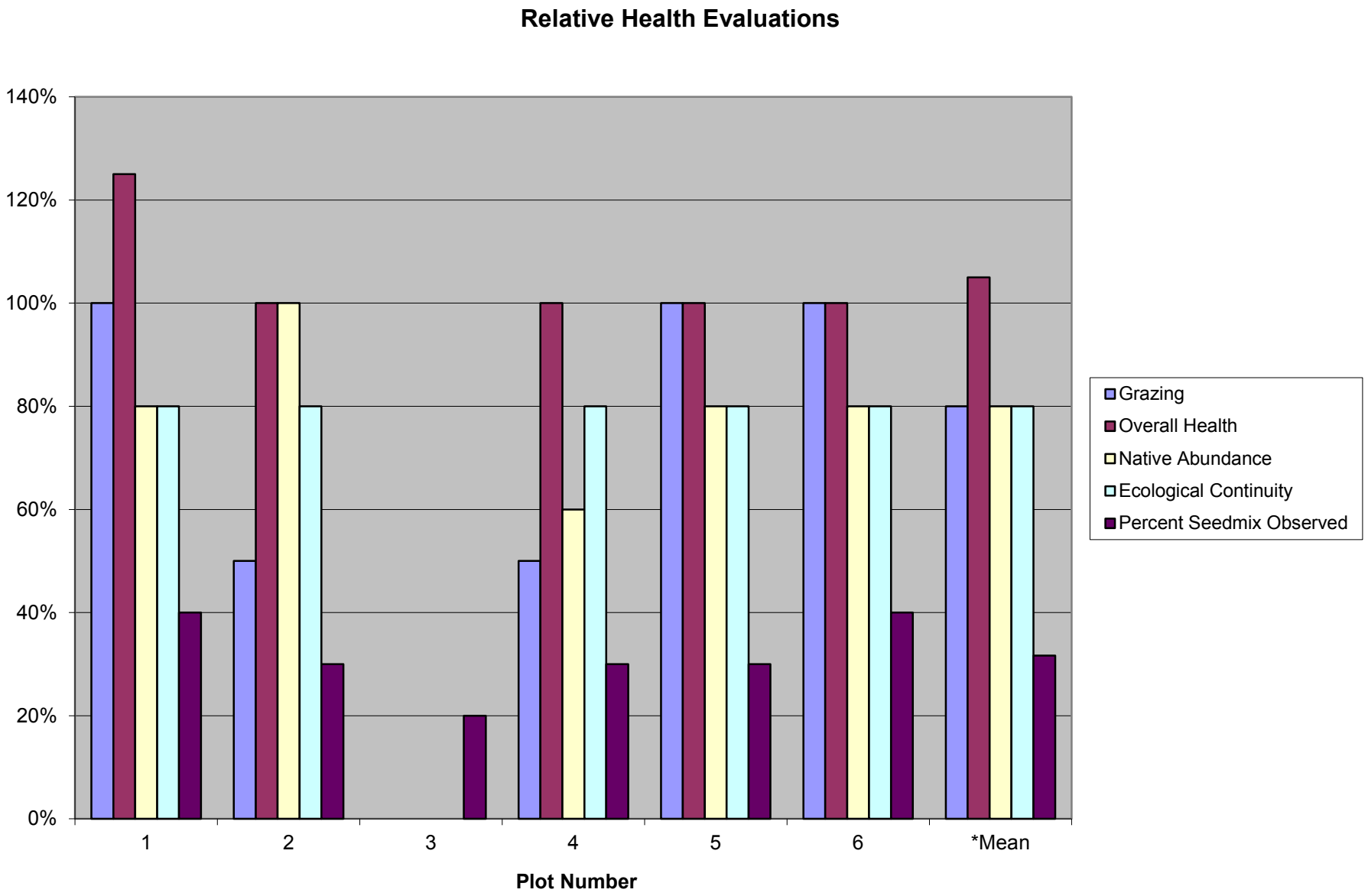
Project-Powers Blvd

Date: 8/8/2014

Plot/Transect #	**Original Seed Mix**	1	2	**3**	**4**	**5**	**6**
Background/Off ROW		**Background**					
General Location		BassPro Dr- W slope, south facing	BassPro Dr-W flat	BassPro fenceline	ProBass west from treatment	ProBass east from treatment	ProBass flat middle
Top Canopy/Other Layers/ID from Transects							
Dominant Species #1	Oats-AVSA	ELTR7	BOCU	BOGR2	ELTR7	TRAE	BOGR2
Dominant Species #2	Blue Grama-BOGR2	PASM	BOGR2	HECO26	PASM	PASM	PAVI
Dominant Species #3	Switch Grass-PAVI	ELGL	KOMA	EREF	TRAE	ELTR7	SPCR
Dominant Species #4	Western Wheatgrass-PASM	BOCU	ELTR7	ARFR4	PAVI	BOCU	NAVI4
Dominant Species #5	Little bluestem-SCSC	PAVI	RACO3	BRTE	BOCU	PAVI	TRAE
Dominant Species	Green needlegrass-NAVI4	CHAL7		PLANTAGO	TRHY	CHAL7	PASM
Dominant Species	Slender wheatgrass-ELTR7	ELEL5		CAPR		PORA3	TRRE3
Dominant Species	Junegrass-KOMA	GAAR		FESCUE		SPCR	
Dominant Species	Prairie coneflower-RACO3			NAVI4			
Dominant Species	Purple prairie clover-DAPU			MOSS			
Dominant Species	Gaillardia-GAAR			ARCA12			
Dominant Species				BOCU			
Dominant Species				SATR			
Vegetative Stage of Dominant Sp		seedlings, flowering, fruiting	seedlings, flowering, fruiting	seedlings, flowering, fruiting	seedlings, flowering, fruiting	seedlings, flowering, fruiting	seedlings, flowering, fruiting
Total pounds seed/acre							
Total PLS/ acre	29						
Seeded Acres (native)	30						
Mulch Acres	30						
Mulch Tackifier	30						
Blanket Application (acres)	data not available						
Mulch Application (tons/acre)	1.5						
Percent Seed Mix Species Identified	**Mean = 32%**	**40%**	**30%**	**20%**	**30%**	**30%**	**40%**
Grazing (1-5)		2	1	2	1	2	2
Overall Health Value (1-5)		5	4	4	4	4	4
Noxious Weeds Observed		CEDI3	CEDI3	BRTE	BRTE	BRTE	BRTE
Noxious Weeds Observed		COAR4	VETH	CEDI3	CEDI3	CEDI3	CEDI3
Noxious Weeds Observed		VETH		CESTM	CESTM	VETH	VETH

Noxious Weeds Observed				COAR4	VETH		
Noxious Weeds Observed				LIVU2			
Noxious Weeds Observed				VETH			
Noxious Weeds Observed							
Seed Mix Observed							
Observed Species		AVSA	BOCU	BOCU	BOCU	BOCU	BOGR2
Observed Species		BOCU	BOGR2	BOGR2	ELTR7	ELTR7	GAAR
Observed Species		ELTR7	KOMA	NAVI4	GAAR	GAAR	NAVI4
Observed Species		GAAR	ELTR7		PASM	PASM	PASM
Observed Species		PASM	RACO		PAVI	PAVI	PAVI
Observed Species		PAVI	PAVI			RACO3	RACO3
Observed Species			PASM				SCSC
Observed Species			SCSC				
Native Plant Abundance (1-5)		4	5	5	3	4	4
Introduced Species							
Non-Native Species		AGCR	BRAR5	BASC	AGCR	TRAE	AGCR
Non-Native Species		CHAL7	HOJU	CHAL7	CHAL7	PORA3	CHAL7
Non-Native Species		SATR	MEOF	EREF	MEOF	CHAL7	MEOF
Non-Native Species			SATR	HELO	SATR	SATR	MESA
Non-Native Species			TRHY	SATR	TRAE	TRDU	TAOF
Non-Native Species				YUGL	TRDU		
Non-Native Species					TRHY		
Native Species		ARCA12	ANMA	ARCA12	ALYSSUM	ARCA12	ARCA12
Native Species		ARFR4	ARFR4	ARFR4	ARCA12	BOCU	ARFR4
Native Species		ARLI	BOCU	BOCU	ARFR4	CHAL7	BOGR2
Native Species		BOCU	BOGR2	BOGR2	BOCU	ELTR7	ELEL5
Native Species		CHAL7	COCA5	CAPR	COCA5	HEVI4	HEAN
Native Species		COCA5	ELTR7	CASTILLEJA	ELTR7	PASM	HEVI4
Native Species		ELEL5	ERIG	CRYPTANTHA	GAAR	PAVI	NAVI4
Native Species		ELGL	HEAN	ELEL5	HEAN	PHPA2	PASM
Native Species		ELTR7	HECO26	ELGL	HEVI4	PORA3	PAVI
Native Species		GAAR	KOMA	EREF	OPPO	SPCR	PHPA2
Native Species		HEAN	OPPO	FESCUE	PASM	SYPHYOTRICHUM	PLANTAGO
Native Species		LILEL2	PASM	HECO26	PAVI		PORA3
Native Species		PASM	PAVI	HEVI4	PLANTAGO		SESE
Native Species		PAVI	RACO	LIPU	SESE		SPCR
Native Species		SPCR	SPCR	MOSS	TRAE		SYMPHYOTRICHUM
Native Species		ZIGR		NAVI4	ZIGR		

Native Species				PESI			
Native Species				PLANTAGO			
Native Species				POTENTILLA			
Native Species				SESE			
Native Species				SPCR			
Native Species				YUGL			
Ecological Continuity Value (1-5)		4	4	5	4	4	4
Diversity		very healthy; excellent	very healthy; excellent	diverse, but weedy	Pretty good	Very good	Very good
Topography		very steep slope 45%	on flats	next to fence	diagonal to west		flat on seed drilling line
		good reclamation	good reclamation		hydromulched	hydromulched	
Hydrology		well drained; wet	well drained; erosion gully	well drained; wet	well drained; erosion gully	well drained	flat area; wet due to heavy rains last 2 weeks
Percent Vegetation Cover							
Percent canopy (foliar) Cover		80%	90%	100%	90%	80%	90%
Percent Bare Ground		10%	0%	0%	0%	10%	0%
Percent Basal/Soil Surface Cover		30%	20%	50%	30%	10%	20%
Amendments							
Fertilizer (yes/no)	Yes						
Biological nutrient organic based fertilizer (lbs/acre)	600						
Humate (lbs/acre)	200						
Compost (cys/acre)	65						
Spray on organic amendments (lbs/acre)	3500						
Soil Chemistry							
Soil pH		6.5	5.8/7.1	6.1/6.6	6.4/6.4	6.5/7.1	6.1/7.5
Soil EC		0.08	0.04/0.06	0.04/0.01	0.05/0.05	0.08/0.08	0.05/0.03
Surface Depth		0-8	0-6	0-10	0-8	0-6	0-4
Surface Color		10YR 3/3	10YR 3/2	10YR 3/2	10YR 3/2	10YR 3/2	10YR 3/3
Subsurface Color		--	2.5Y 7/6	10YR 4/4	2.5Y 7/6	2.5Y 7/6	10YR 6/4


Relative Health Evaluations
140%
120%
100%
80%
60%
40%
20%
0%
1
2
3
4
5
6
*Mean
Plot Number
Grazing
Overall Health
Native Abundance
Ecological Continuity
Percent Seedmix Observed

Summary Scores for Powers Blvd

Plot	Reference	Canopy Cover	Bare Ground	Basal Cover	Grazing	Overall Health	Native Abundance	Ecological Continuity
1		80%	10%	30%	2	5	4	4
2		90%	0%	20%	1	4	5	4
3	Reference	100%	0%	50%	2	4	5	5
4		90%	0%	30%	1	4	3	4
5		80%	10%	10%	2	4	4	4
6		90%	0%	20%	2	4	4	4
***Mean**		**86%**	**4%**	**22%**	**1.6**	**4.2**	**4**	**4**

*excludes reference

1-low

5-high

Relative Heath Evaluations

Plot	Grazing	Overall Health	Native Abundance	Ecological Continuity	Percent Seedmix Observed
1	100%	125%	80%	80%	40%
2	50%	100%	100%	80%	30%
3					20%
4	50%	100%	60%	80%	30%
5	100%	100%	80%	80%	30%
6	100%	100%	80%	80%	40%
***Mean**	**80%**	**105%**	**80%**	**80%**	**32%**

Powers Blvd TerraLogic for CDOT

USDA Codes for Plants

Seed Mix Species			
Latin Name	**Code**	**Common Name**	**Notes**
Avena sativa	AVSA	common oat	sterile variety
Bouteloua curtipendula v 'Vaughn'	BOCU	sideoats grama	tufted with rhizomes < B gracilis
Bouteloua gracilis v 'Hachita'	BOGR2	blue grama	one-sided flags; ligules of hairs; tufted short rhizomes
Elymus trachycaulus 'Pryor'	ELTR7	slender wheatgrass	glumes as long as entire spikelet
Koeleria macrantha	KOMA	prairie Junegrass	shiny dense panicles
Panicum virgatum	PAVI	pathfinder switchgrass	ligule fine, long 4-5mm hairs
Pascopyrum smithii v arriba	PASM	western wheatgrass	blue-grn; glumes assymetrical acute, ciliate;rhizomatous
Schizachyrium scoparium 'Pastura'	SCSC	little bluestem	whole plant looks flattened; reddish color; fluffy white seeds
Stipa viridula	NAVI4	green needlegrass	syn:Nassella viridula;
Gaillardia aristata	GAAR	blanket flower	orange & yellow rays; opposite lvs
Ratibida columnaris	RACO3	upright prairie coneflower	same as R columnifera; different variety
Dalea purpurea	DAPU	purple prairie clover	linear pinnatifid lvs; tall cone
Weeds			
Bromus tectorum	BRTE	cheat grass; downy brome	dense white down base; easy to pull; lemmas narrow; I
Centaurea diffusa	CEDI3	diffuse knapweed	dried; head (phyllaries) looks like white fishnet
Centaurea maculosa	CESTM	spotted knapweed	syn: C stoebe ssp micranthos; spotted on involucres
Convolvulus arvensis	COAR4	field bindweed	vine along ground, white morning glory flowers
Linaria vulgaris	LIVU2	yellow toadflax	thin, linear lvs, butter n eggs
Verbascum thapsus	VETH	common mullein	Indian tp; soft woolly leaves
Introduced			
Agopryron cristatum	AGCR	crested wheatgrass	spikelets with stiffly widely spreading florets
Bassia scoparia	BASC	kochia	small green balled flower heads amid reducing size lvs up stem
Bromus arvensis	BRAR5	Japanese brome	like smooth brome but spikes hanging
Bromus inermus	BRINI2	smooth brome	W, M; sandpapery; I-introduced
Chenopodium album	CHAL7	pigweed	scaly stem; salty glaucous goosefoot lvs; red stem

Latuca serriolla	LASE	prickly lettuce	dandelion red stem, spiny lvs; tiny small yellow flowers
Medicago sativa	MESA	alfalfa	purple pea flowers with small clover-like cauline leaves
Melilotus officinale	MEOF	sweet clover	yellow, tall, thin clover
Polygonum ramosissimum	PORA	knotweed	slender, wandlike; main stem w several elongate branches
Salsola tragus	SATR	prickly russian thistle	tumbleweed; very spikey fruits; red stemmed, succulent spike lvs
Taraxacum officinale	TAOF	dandelion	
Tragopogon dubius	TRDU	yellow salsify	green sepals > petals; alternate gray-grn entire lvs
Trifolium hybridum	TRHY	Alsike clover	no drought; flw smaller; introduced
Trifolium repens	TRRE3	white clover	a red native clover
Triticum aestivum	TRAE	wheat	introduced; alien; volunteer persisting along roadsides
Graminoids			
Carex praegracilis	CAPR	clustered field sedge	upland sedge; scruffy terminal and moneocious
Elymus elymoides	ELEL5	squirreltail	tufted, reddish florets, open stars; > delicate H jubatum; lots of dead lvs at base
Elymus glaucus	ELGL	blue wildrye	longer awns than E trachycaulus
Festuca	FESCUE	fescue	sev florets; glumes short; lemmas awned; tufted base; ligules membranous
Hesperostipa comata	HECO26	needle and thread grass	1 floret/spike; ligules membranous, short ciliate; lemmas long
Hordeum jubatum	HOJU	foxtail barley	looks like squirreltail, but many awned when plant dries
Sporobolus cryptandrus	SPCR	sand dropseed	white hairs standing at nodes; thin, pointed end lvs
Forbs			
Achillea millefolium	ACMI2	common yarrow	fern lvs, olive color; tiny white flwrs in a rounded umbel head
Adenolinum lewisii	LILEL2	prairie flax	erect narrow stem; alternate tiny lvs
Alyssum sp	ALYSSUM	baby's breath	unknown alyssum perennial
Anaphalis margaritacea	ANMA	pearly everlasting	soft, wooly, upright, many off-white rayless heads
Arabis lignifera	ARLI	desert rockcress	2 ft; sticklike; terete siliques
Argemone polyanthemos	ARPO2	crested prickly poppy	leaf surfaces prickly on primary & secondary veins
Artemisia campestris	ARCA12	field sagewort	finely linear lvs
Artemisia frigida	ARFR4	prairie sagewort	finely dissected lvs
Castilleja sp	CASTIL	Indian paintbrush	
Conyza canadensis	COCA5	Canadian horseweed	
Erigeron sp	ERIG	fleabane	

Eriogonum effusa	EREF	spreading buckwheat	many tiny flwrs on baby breath type stalks- turns brownish red
Helianthus annuus	HEAN	annual sunflower	phyllaries hispid-ciliate ovate, with acuminate tips; taprooted
Heterotheca villosa	HEVI4	hairy false goldenaster	hairy, sticky though soft
Liatris punctata	LIPU	gayfeather; dotted blazing	bright purple, many sm flwrs
Oenothera biennis	OEBI	common evening primrose	yellow bell flwrs on tall stalk; lvs lanceolate, entire, serrated
Opuntia polyacantha	OPPO	prickly pear	flat beaver tail with many lengths of spines off glochids
Pediocactus simpsonii	PESI	ball cactus	golfball with 8-11 spines
Phemeranthus parviflorus	PHPA29	sunbright	basal, linear, succulent lvs 3-4 cm; tiny red flwrs well above lvs
Plantago sp	PLANTAGO	plantago sp	
Polygonum ramosissimum	PORA3	bushy knotweed	alternate leaves; bracts look like crowns; knotted nodes
Senecio serra	SESE2	tall ragwort	single series linear involucre; yellow ray, capillary; linear lvs
Symphytrichum sp.	SYPHOTR	white aster	
Yucca glauca	YUGL	soapweed yucca	knife basal lvs; very tall
Zinnia grandiflora	ZIGR	Rocky Mountain zinnia	fine linear lvs, broad, round involucres; yellow flwrs