



Pecos National Historical Park

Southern Plains Network and Southern Plains Fire Group 2013 Vegetation Monitoring Data Summary



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ON THE COVER

Grassy plain at Pecos NHP. NPS Photo.

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Introduction

This report contains a data summary of results from all vegetation monitoring conducted by the Southern Plains Network (SOPN) and the Southern Plains Fire Group (SPFG) during 2013 at Pecos National Historical Park (PECO). Data summaries are used to impart current monitoring data until enough years of data have been collected to facilitate trend analysis. A more detailed synthesis report is scheduled to be produced in 2015.

Grassland Monitoring Results.

Grassland monitoring occurred during early August of 2013 (Table 1). Data from the eight (8) permanent transects (Figure 2) were collected following the established monitoring protocol *Grassland Monitoring Protocol and Standard Operating Procedures for the Southern Plains I&M Network and Fire Group* (Folts-Zettner et al.) (Figure 1). The protocol calls for a series of

Table 1. Plant community and sampling dates for each transect at Pecos NHP in 2013.

Group	Transect	Plant community	Date
Upland	LT-04	Blue Grama/Treatment	08/05
	LT-05	Blue Grama/Treatment	08/01
	LT-07	Blue Grama/Treatment	08/02
	LT-10	Blue Grama/Treatment	08/04
	LT-12	Blue Grama/Treatment	08/02
	LT-16	Blue Grama/Treatment	08/03
	LT-17	Blue Grama/Treatment	08/03
	LT-19	Blue Grama/Old Field	08/04

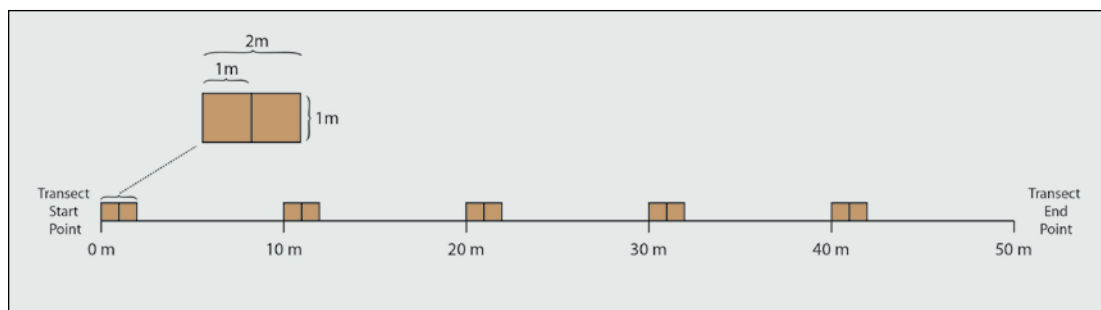


Figure 1. Layout of plots within each permanent transect.

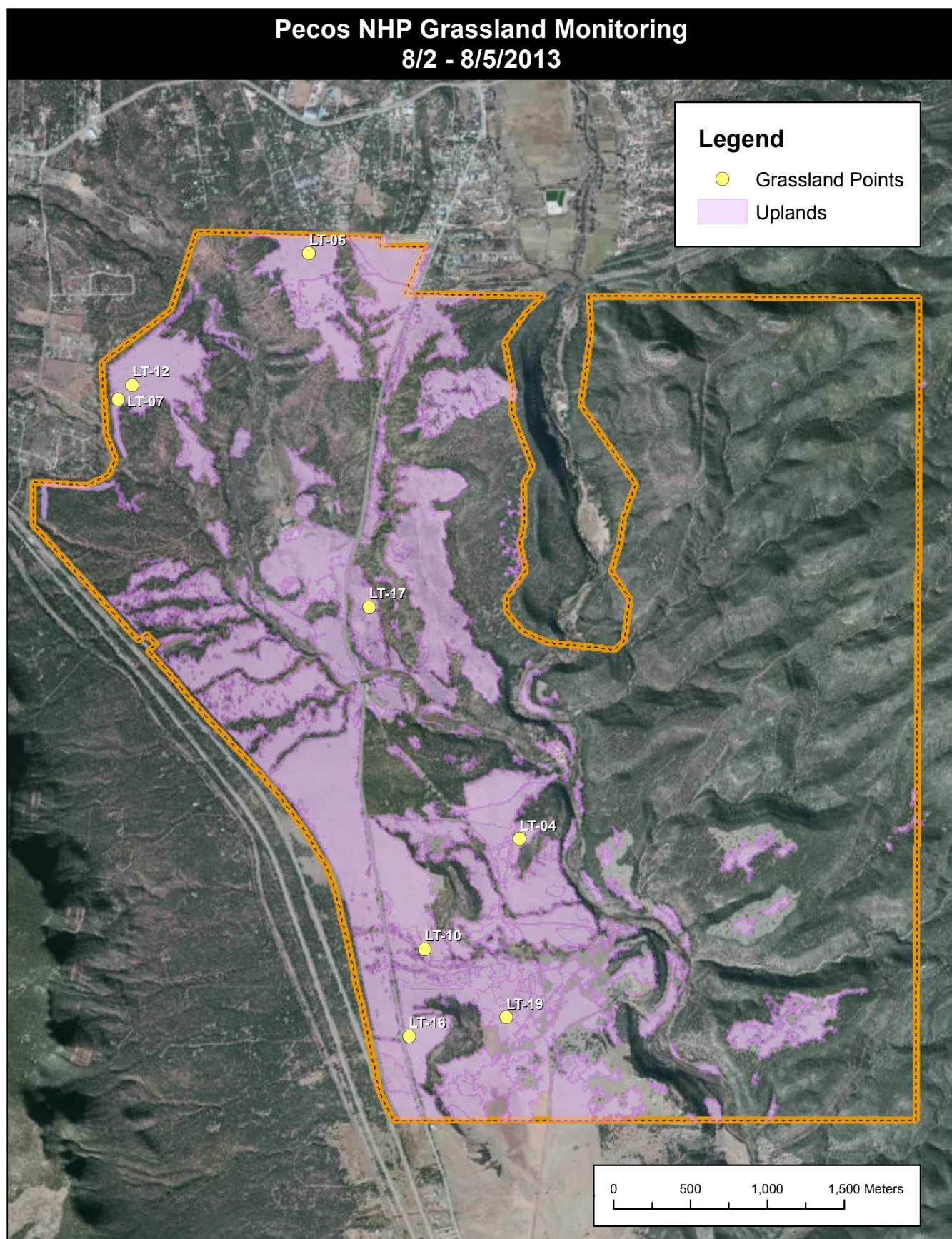


Figure 2. Location of each permanent grassland plot at PECO monitored in 2013.

permanent 50-meter transects containing five 2x1-meter plots. Species composition, relative cover and ground strata are collected during annual visits.

The type and amount of ground strata (bare soil, litter, rock) influences many aspects of grassland health. The benefits of these influences vary along an east-west gradient. Litter accumulation, for example is considered more beneficial in the western parts of the Southern Great Plains because it protects the soil from erosion by wind and rain, and keeps soil root-zones cooler. These same benefits accrue in the eastern area, but because higher rainfall results in higher vegetative production, the greater accumulation of litter can negatively impact a grassland by limiting seedling recruitment. Ground strata estimates for each transect monitored at PECO in 2013 can be found in Table 2.

Table 3 contains numerical results of 2013 grassland monitoring at PECO. Each transect contains five plots. Frequency reflects the number of plots in each transect where a particular

Table 2. Ground strata type and percentage for each transect monitored at PECO in 2013.

Cover	Upland Community							
	LT-04	LT-05	LT-07	LT-10	LT-12	LT-16	LT-17	LT-19
SOIOPEN	46.2	57	20.8	54.2	50.8	39.6	50.4	33.6
SOILUNDER	8.4	3.4	3.2	3.6	0.8	2.8	2.2	1.4
LITTER	22	9	45.6	26.4	17	48	42.2	62.2
WOOD	14.8	28	26.4	16.2	29.4	7.8	0.4	0
ROCKSM	5.2	0	0.2	0.8	0.2	0	1.8	1.8
ROCKLG	1	0	0	0	0	0	0	0
LICHEN	0	0	0	0	0	0	0	0
MOSS	0	0	0.6	0	0	0.2	0	0
CRUST	0.6	1.6	3.2	0.8	1.8	1.6	3	1

Table 3. Species cover sum and frequency for each permanent transect monitored at PECO in 2013. Exotic species are highlighted in pink.

Species Code	LT-04		LT-05		LT-07		LT-10		LT-12		LT-16		LT-17		LT-19	
	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency
Forb																
ARTFRI	0.5	1	0.5	1					0.5	1						
ASCSUB					0.5	1			0.5	1						
ASTLON	1.5	3														
CASINT							0.5	1								
CHAALB	0.5	1														
CHAERI	0.5	1			0.5	1	1	2			1.5	3	0.5	1		
CHAFEN	2	4	2	4	2.5	5	3	4	2.5	5			1.5	3	3.5	2
CHEINC															0.5	1
CHEPAL							1	2			2	3				
CHEPRA							0.5	1								
CHEWAT									0.5	1	2	2			6.5	4
CIRNEO			1	1	6	2										
CIRUND							0.5	1	0.5	1						
CROTEX					0.5	1			0.5	1						
CRYCIN					1	2	0.5	1								
DALCAN	0.5	1											1.5	3		
DALENN									0.5	1						
DESCOO	1	2														
ECHSSP													0.5	1		
ERIALA			0.5	1	1	2			1	2						
ERIJAM	2	3	14	2	0.5	1	0.5	1	0.5	1			11.5	4		
GAUCOC					0.5	1							0.5	1		
GLABIP	0.5	1					1	2					0.5	1		
GUTSAR	2.5	4					1	1			0.5	1	8.5	3		
HELANN			1	2											0.5	1
HETFUL			0.5	1												
HYMFIL	0.5	1	8.5	3									0.5	1		
HYMRIC	1.5	1					1	1								
LACTAT									0.5	1						
LINPUB	0.5	1														
MACPIN					3.5	2	5	1	1.5	2	2	4	3	1		
MENSCA	6	3	8	3			18.5	5					1	2		
MIRLIN			0.5	1	0.5	1			3	5			0.5	1		
OENALB			3	1												
PENJAM			0.5	1					0.5	1			1	2		
PHLNAN									0.5	1			1	1		
PHYHED	1	2	0.5	1	0.5	1			2	4	1	2	1	2		
POROLE			1	1			5.5	2	1	2	10	2	0.5	1		
PSOTEN	1	1	0.5	1			1	2								
RATTAG											0.5	1				
SALSUB							1	1								
SALTRA							1	1	2	4	1.5	3				
SANABE							0.5	1								
SENSPA							0.5	1					0.5	1	1.5	3

Table 3. Species cover sum and frequency for each permanent transect monitored at PECO in 2013. Exotic species are highlighted in pink (continued).

Species Code	LT-04		LT-05		LT-07		LT-10		LT-12		LT-16		LT-17		LT-19	
	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency	Cover Sum	Fre-quency
SOLJAM											0.5	1				
SPHCOC	1	1														
SPHFEN			1.5	2												
SYMFAL									0.5	1						
TALPAR					1	2			1.5	3					1	2
TETARG	4	3			0.5	1	4	2					2	3		
THEMEG	0.5	1	1	2												
TOWEXI			1	2												
TRADUB					0.5	1										
Grass																
ARIPUR	3	3			2	2	1	1								
BOUCUR	4.5	3			2.5	3	1	2					2.5	3		
BOUGRA	1.5	3	4.5	3	11	5	14.5	5	13.5	4	7	5	20	5	26.5	5
BOUHIR	1	2			18	5	1	2	10.5	5	1.5	2	1	2	2	4
ELYELY	0.5	1	4.5	3	0.5	1							3	1		
LYCSET													0.5	1		
MONSQU			0.5	1			0.5	1	3	5						
MUHTOR			1	1			2.5	4					0.5	1		
PASSMI	0.5	1													0.5	1
PLEJAM															20	1
SPOCRY			0.5	1			1.5	2			1	2				
Shrub																
ERINAU	1	1					0.5	1			0.5	1				
Subshrub																
ECHVIR					1	2					1	2			0.5	1
ESCVIV									1	2						
OPUPHA	3.5	2	0.5	1												
OPUPOL													0.5	1		
Tree																
JUNMON	15	1	17	1												
PINEDU					3	1										

Table 4. All plant species detected during grassland monitoring in 2010 and exotic monitoring in 2010 and 2013 at PECO. Exotic species are highlighted in pink.

Species Code	LifeForm	Scientific Name	Common Name	Primary Duration
ARIPUR	Grass	<i>Aristida purpurea</i>	purple threeawn	Perennial
ARTFRI	Forb	<i>Artemisia frigida</i>	fringed sagebrush	Perennial
ASCSUB	Forb	<i>Asclepias subverticillata</i>	horsetail milkweed	Perennial
ASPOFF	Forb	<i>Asparagus officinalis</i>	garden asparagus	Perennial
ASTLON	Forb	<i>Astragalus lonchocarpus</i>	great rushy milkvetch	Perennial
BOUCUR	Grass	<i>Bouteloua curtipendula</i>	sideoats grama	Perennial
BOUGRA	Grass	<i>Bouteloua gracilis</i>	blue grama	Perennial
BOUHIR	Grass	<i>Bouteloua hirsuta</i>	hairy grama	Perennial
BROJAP	Grass	<i>Bromus japonicus</i>	Japanese brome	Annual
BROLAN	Grass	<i>Bromus lanceolatus</i>	Mediterranean brome	Annual
BROTEC	Grass	<i>Bromus tectorum</i>	cheatgrass	Annual
CAMMIC	Forb	<i>Camelina microcarpa</i>	smallseed false flax	Annual/Biennial
CASINT	Forb	<i>Castilleja integra</i>	wholeleaf indian paintbrush	Perennial
CHAALB	Forb	<i>Chamaesyce albomarginata</i>	rattlesnake weed	Perennial
CHAERI	Forb	<i>Chaetopappa ericoides</i>	baby white aster	Perennial
CHAFEN	Forb	<i>Chamaesyce fendleri</i>	fendler's sandmat	Perennial
CHEALB	Forb	<i>Chenopodium album</i>	common lambsquarters	Annual
CHEINC	Forb	<i>Chenopodium incanum</i>	mealy goosefoot	Annual
CHEPAL	Forb	<i>Chenopodium pallescens</i>	slimleaf goosefoot	Annual
CHEPRA	Forb	<i>Chenopodium pratericola</i>	desert goosefoot	Annual
CHEWAT	Forb	<i>Chenopodium watsonii</i>	watson's goosefoot	Annual
CIRARV	Forb	<i>Cirsium neomexicanum</i>	new mexico thistle	Perennial
CIRNEO	Forb	<i>Cirsium arvense</i>	canada thistle	Biennial/Perennial
CIRUND	Forb	<i>Cirsium undulatum</i>	wavyleaf thistle	Biennial
CIRVUL	Forb	<i>Cirsium vulgare</i>	bull thistle	Biennial
CONARV	Forb	<i>Convolvulus arvensis</i>	field bindweed	Perennial
CROTEX	Forb	<i>Croton texensis</i>	texas croton	Annual
CRYCIN	Forb	<i>Cryptantha cinerea</i>	james cryptantha	Perennial
DACGLO	Grass	<i>Dactylis glomerata</i>	orchardgrass	Perennial
DALCAN	Forb	<i>Dalea candida</i>	slender white prairie clover	Perennial
DALENN	Forb	<i>Dalea enneandra</i>	nine-anther dalea	Perennial
DESCOO	Forb	<i>Desmanthus cooleyi</i>	cooleys bundleflower	Perennial
ECHSSP	Forb	<i>Echinacea ssp.</i>	purple coneflower	N/Annual
ECHVIR	Subshrub	<i>Echinocereus viridiflorus</i>	nylon hedgehog cactus	Perennial
ELYELY	Grass	<i>Elymus elymoides</i>	bottlebrush squirreltail	Perennial
ERIALA	Forb	<i>Eriogonum alatum</i>	winged buckwheat	Perennial
ERIJAM	Forb	<i>Eriogonum jamesii</i>	james buckwheat	Perennial
ERINAU	Shrub	<i>Ericameria nauseosa</i>	rubber rabbitbrush	Perennial
ESCVIV	Subshrub	<i>Escobaria vivipara</i>	spinystar	Perennial
GAUCOC	Forb	<i>Gaura coccinea</i>	scarlet guara	Perennial
GLABIP	Forb	<i>Glandularia bipinnatifida</i>	dakota mock vervain	Annual/Perennial
GUTSAR	Forb	<i>Gutierrezia sarothrae</i>	broom snakeweed	Perennial

Table 4. All plant species detected during grassland monitoring in 2010 and exotic monitoring in 2010 and 2013 at PECO. Exotic species are highlighted in pink. (continued).

Species Code	LifeForm	Scientific Name	Common Name	Primary Duration
HELANN	Forb	<i>Helianthus annuus</i>	common sunflower	Annual
HETFUL	Forb	<i>Heterotheca fulcrata</i>	mountain goldenaster	Perennial
HYMFIL	Forb	<i>Hymenopappus filifolius</i>	fineleaf woollywhite	Perennial
HYMRIC	Forb	<i>Hymenoxys richardsonii</i>	colorado rubberweed	Perennial
JUNMON	Tree	<i>Juniperus monosperma</i>	oneseed juniper	Perennial
KOCSO	Forb	<i>Kochia scoparia</i>	kochia	Annual
LACSER	Forb	<i>Lactuca serriola</i>	prickly lettuce	Annual
LACTAT	Forb	<i>Lactuca tatarica</i>	blue lettuce	Biennial/Perennial
LINPUB	Forb	<i>Linum puberulum</i>	desert flax	Annual
LYCSET	Grass	<i>Lycurus setosus</i>	bristly wolfstail	Perennial
MACPIN	Forb	<i>Machaeranthera pinnatifida</i>	lacy tansyaster	Perennial
MARVUL	Forb	<i>Marrubium vulgare</i>	horehound	Perennial
MEDSAT	Forb	<i>Medicago sativa</i>	alfalfa	Annual/Perennial
MELOFF	Forb	<i>Melilotus officinalis</i>	yellow sweetclover	Annual
MENSCA	Forb	<i>Menodora scabra</i>	rough menodora	Perennial
MIRLIN	Forb	<i>Mirabilis linearis</i>	narrowleaf four o'clock	Perennial
MONSQU	Grass	<i>Monroa squarrosa</i>	false buffalograss	Annual
MUHTOR	Grass	<i>Muhlenbergia torreyi</i>	ring muhly	Perennial
OENALB	Forb	<i>Oenothera albicaulis</i>	whitestem evening primrose	Annual
OPUPHA	Subshrub	<i>Opuntia phaeacantha</i>	brwnspine pricklypear cactus	Perennial
OPUPOL	Subshrub	<i>Opuntia polyacantha</i>	plains pricklypear cactus	Perennial
PASSMI	Grass	<i>Pascopyrum smithii</i>	western wheatgrass	Perennial
PENJAM	Forb	<i>Penstemon jamesii</i>	james penstemon	Perennial
PHLNAN	Forb	<i>Phlox nana</i>	santa fe phlox	Perennial
PHYHED	Forb	<i>Physalis hederifolia</i>	ivyleaf groundcherry	Perennial
PINEDU	Tree	<i>Pinus edulis</i>	pinyon pine	Perennial
PLEJAM	Grass	<i>Pleuraphis jamesii</i>	james galleta grass	Perennial
POACOM	Grass	<i>Poa compressa</i>	Canada bluegrass	Perennial
POLCON	Vine	<i>Polygonum convolvulus</i>	climbing buckwheat	Annual
POROLE	Forb	<i>Portulaca oleracea</i>	common purslane	Annual
PSOTEN	Forb	<i>Psoraleidum tenuiflorum</i>	slimflower scurfpea	Perennial
RATTAG	Forb	<i>Ratibida tagetes</i>	green mexican hat	Perennial
RUMCRI	Forb	<i>Rumex crispus</i>	curley dock	Perennial
SALSUB	Forb	<i>Salvia subincisa</i>	sawtooth sage	Annual
SALTRA	Forb	<i>Salsola tragus</i>	prickly russian thistle	Annual
SANABE	Forb	<i>Sanvitalia abertii</i>	albert's creeping zinnia	Annual
SCOLAC	Forb	<i>Scorzonera laciniata</i>	cutleaf vipergrass	Perennial
SENSPA	Forb	<i>Senecio spartioides</i>	broom groundsel	Perennial
SOLJAM	Forb	<i>Solanum jamesii</i>	wild potato	Perennial
SPHCOC	Forb	<i>Sphaeralcea coccinea</i>	scarlet globemallow	Perennial
SPHFEN	Forb	<i>Sphaeralcea fendleri</i>	fendlers globemallow	Perennial
SPOCRY	Grass	<i>Sporobolus cryptandrus</i>	sand dropseed	Perennial

Table 4. All plant species detected during grassland monitoring in 2010 and exotic monitoring in 2010 and 2013 at PECO. Exotic species are highlighted in pink. (continued).

Species Code	LifeForm	Scientific Name	Common Name	Primary Duration
SYMFAL	Forb	<i>Symphyotrichum falcatum</i>	white prairie aster	Perennial
TALPAR	Forb	<i>Talinum parviflorum</i>	prairie flameflower	Perennial
TETARG	Forb	<i>Tetaneuris argentea</i>	perky sue	Perennial
THEMEG	Forb	<i>Thelesperma megapotamicum</i>	hopi tea greenthread	Perennial
THIPON	Grass	<i>Thinopyrum ponticum</i>	rush wheatgrass	Perennial
TOWEXI	Forb	<i>Townsendia eximia</i>	tall townsend daisy	Perennial
TRADUB	Forb	<i>Tragopogon dubius</i>	western salsify	Annual
TRAPRA	Forb	<i>Tragopogon pratensis</i>	meadow salsify	Biennial
TRITER	Forb	<i>Tribulus terrestris</i>	puncturevine	Annual
ULMPUM	Tree	<i>Ulmus pumila</i>	Siberian elm	Perennial
VERTHA	Forb	<i>Verbascum thapsus</i>	common mullein	Biennial

species was detected. Exotic plant species are highlighted in pink. Scientific and common names for each plant code, as well as that species attributes can be found in Table 4.

Exotic Monitoring Results

Exotic plant monitoring followed the protocol *Multi-Network Exotic Plant Monitoring Protocol and Standard Operating Procedures* (Folts-Zettner et al. 2013). Methodology requires a series of discreet 50-meter blocks along designated vectors chosen for high-probability of introduction. Exotic species detected within each block are assigned densities, and their proximity to the vector itself is divided into various Distance Classes (Figure 3).

Monitoring occurred July 15, 2013 and included the northern section of the Well Road two track (Figure 4). These vectors have been previously monitored July 9-10, 2010. It should be noted that 2010 was a year of above average precipitation, followed by consecutive years of extreme drought, including 2013. Data summarized in this report compares the results of 2013 monitoring to that detected in 2010.

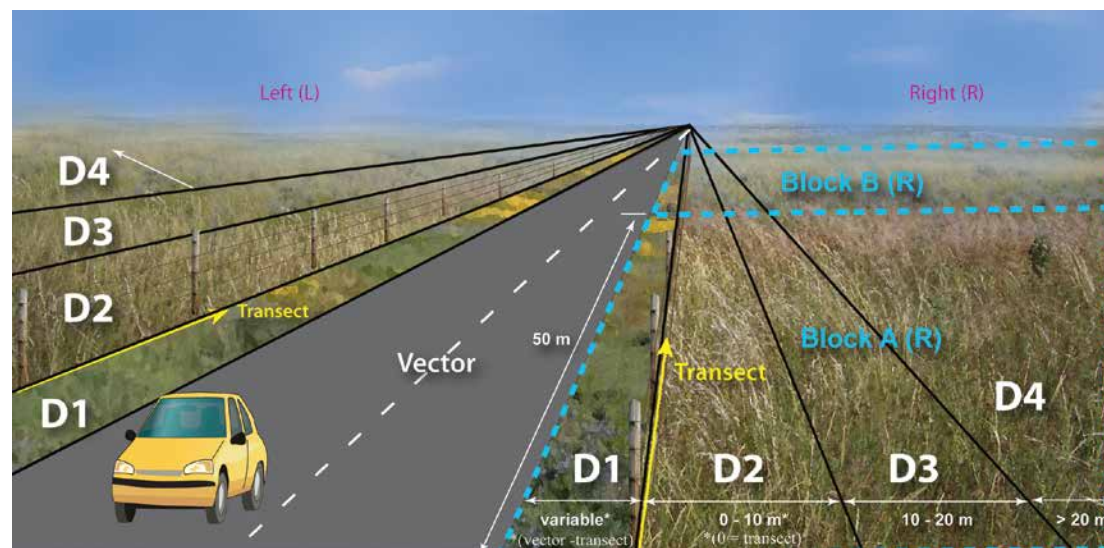


Figure 3. Layout of Vector Blocks and Distance Classes along a vector.

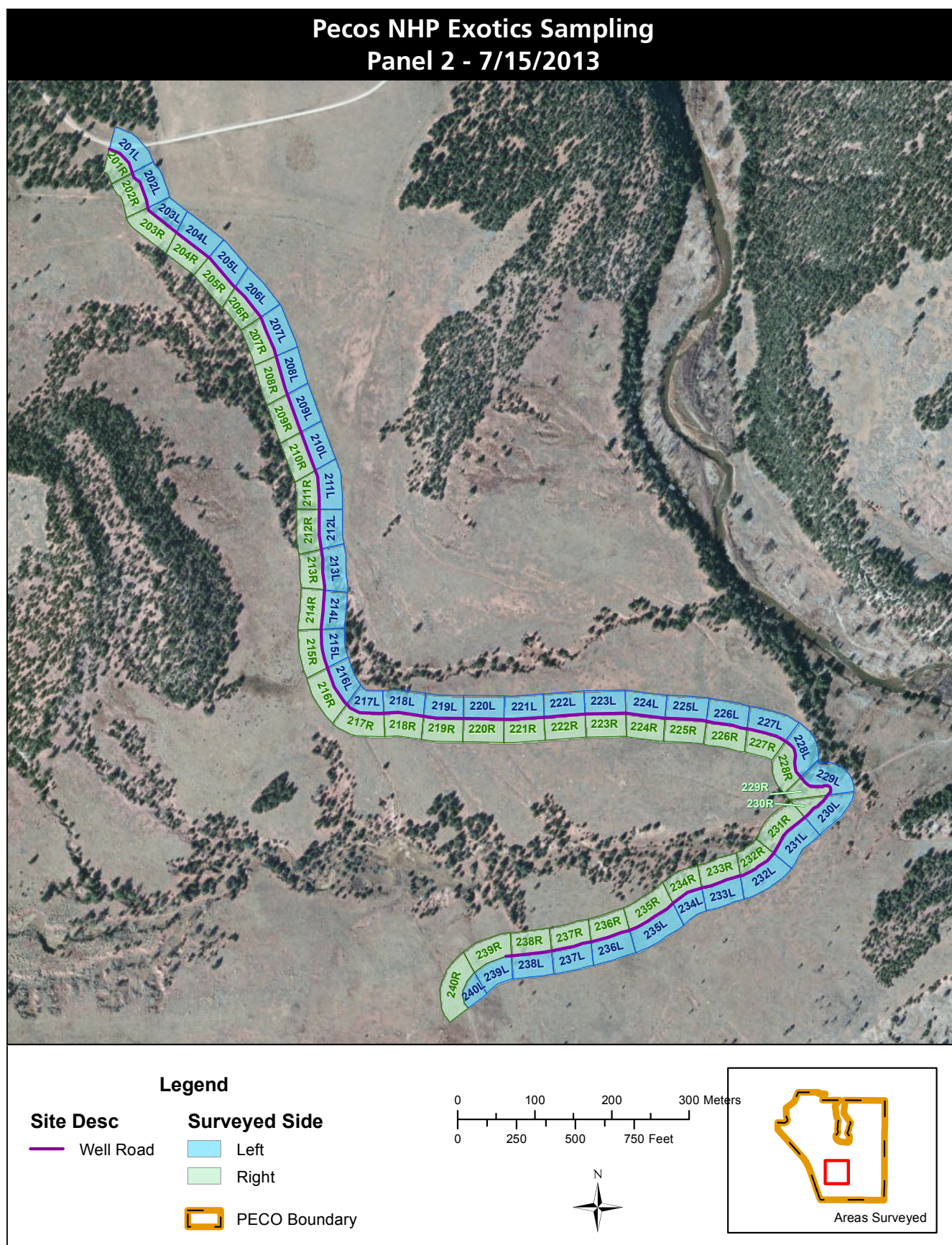


Figure 4. Panel 2 numbered vector blocks monitored at PECO in both 2010 and 2013.

Table 5 presents all exotic species detected during both exotic and grassland (secondary transects) monitoring in both years as well as the number and percentage of vector blocks (N=80) and transects (N=8)(Figure 5) in which these species were found. The effect of drought is easily seen.

Table 5. Number and percentage comparison of unit detections of exotic species found in repeated monitoring of vector blocks and permanent transects at PECO.

Scientific Name	Common Name	2010		2013		2010		2013	
		Primary Blocks (N=80)		Primary Blocks (N=80)		Secondary Transects (N=8)		Secondary Transects (N=8)	
		Total	% Blocks	Total	% Blocks	Total	% Blocks	Total	% Blocks
<i>Asparagus officinalis</i>	garden asparagus	8	10%	–	–	–	–	–	–
<i>Bromus japonicus</i>	Japanese brome	20	25%	–	–	–	–	–	–
<i>Bromus lanceolatus</i>	Mediterranean brome	11	14%	–	–	–	–	–	–
<i>Bromus tectorum</i>	cheatgrass	1	1%	–	–	–	–	–	–
<i>Camelina microcarpa</i>	smallseed false flax	53	66%	–	–	–	–	–	–
<i>Chenopodium album</i>	common lambsquarters	24	30%	49	61%	–	–	–	–
<i>Cirsium arvense</i>	canada thistle	15	19%	–	–	–	–	–	–
<i>Cirsium vulgare</i>	bull thistle	2	3%	–	–	–	–	–	–
<i>Convolvulus arvensis</i>	field bindweed	3	4%	4	5%	–	–	–	–
<i>Dactylis glomerata</i>	orchardgrass	4	5%	–	–	–	–	–	–
<i>Kochia scoparia</i>	kochia	21	26%	6	8%	–	–	–	–
<i>Lactuca serriola</i>	prickly lettuce	–	–	1	1%	3	38%	–	–
<i>Lactuca tatarica</i>	blue lettuce	–	–	–	–	–	–	1	13%
<i>Marrubium vulgare</i>	horehound	36	45%	–	–	–	–	–	–
<i>Medicago sativa</i>	alfalfa	4	5%	–	–	–	–	–	–
<i>Melilotus officinalis</i>	yellow sweetclover	45	56%	–	–	–	–	–	–
No Plant	No Plant	–	–	10	13%	–	–	–	–
<i>Poa compressa</i>	Canada bluegrass	3	4%	–	–	–	–	–	–
<i>Polygonum convolvulus</i>	climbing buckwheat	–	–	1	1%	–	–	–	–
<i>Rumex crispus</i>	curly dock	–	–	3	4%	–	–	–	–
<i>Salsola tragus</i>	prickly Russian thistle	55	69%	59	74%	1	13%	3	38%
<i>Scorzonera laciniata</i>	cutleaf vipergrass	3	4%	–	–	–	–	–	–
<i>Thinopyrum ponticum</i>	rush wheatgrass	7	9%	–	–	–	–	–	–
<i>Tragopogon dubius</i>	western salsify	73	91%	2	3%	6	75%	1	13%
<i>Tragopogon pratensis</i>	meadow salsify	14	18%	–	–	–	–	–	–
<i>Tribulus terrestris</i>	puncturevine	–	–	3	4%	–	–	–	–
<i>Ulmus pumila</i>	Siberian elm	1	1%	–	–	–	–	–	–
<i>Verbascum thapsus</i>	common mullein	11	14%	1	1%	–	–	–	–

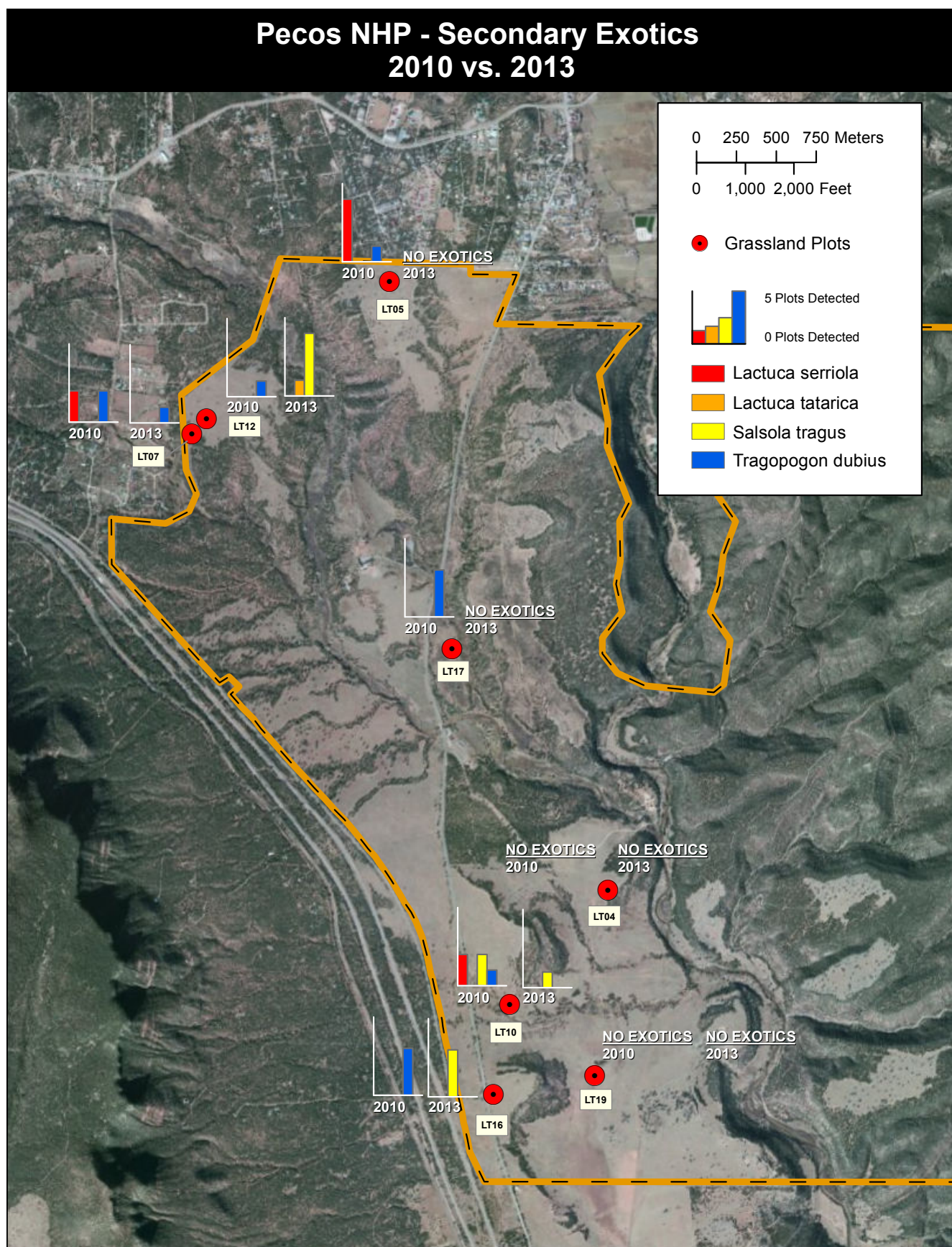


Figure 5. Comparison of exotics detected in 2010 and 2013 grassland monitoring permanent transects at PECO.

The density of a detection of any given exotic species informs us of the invasion stage of that area. A Density Code of 1 will point to either a new introduction in an area or a lack of suitable resources for that species to establish and spread. Conversely, a Density Code of 4 denotes a matrix of the exotic species that has successfully colonized the site and pushed out all native species. Table 6 is a comparison of the number of blocks containing that density in 2010 and 2013 in two Distance Classes. Distance Class 1 is from immediately along the vector to 2 meters into the landscape or the depth of the mowed verge (whichever is greater). Distance Class 2 is a constant 10 meters into the landscape beginning at the interior edge of Distance Class 1. This minimum depth of 12 meters will give the resource manager an idea of the ability of a given exotic species to invade into the interior of a landscape.

Table 6. A comparison of the number of blocks containing a given density in 2010 and 2013 in two Distance Classes.

Species Code	Scientific Name	Common Name	Density Code	Distance Class 1		Distance Class 2	
				2010	2013	2010	2013
ASPOFF	<i>Asparagus officinalis</i>	garden asparagus	1	2	–	4	–
			2	–	–	1	–
BROJAP	<i>Bromus japonicus</i>	Japanese brome	1	3	–	1	–
			2	13	–	10	–
BROLAN2	<i>Bromus lanceolatus</i>	mediteranean brome	1	3	–	–	–
			2	3	–	6	–
BROTEC	<i>Bromus tectorum</i>	cheatgrass	2	–	–	1	–
CAMMIC	<i>Camelina microcarpa</i>	smallseed false flax	1	10	–	15	–
			2	3	–	34	–
CHEALB	<i>Chenopodium album</i>	common lambsquarters	1	12	16	7	11
			2	3	33	8	25
CIRARV	<i>Cirsium arvense</i>	canada thistle	1	2	–	6	–
			2	–	–	6	–
CIRVUL	<i>Cirsium vulgare</i>	bull thistle	1	–	–	1	–
CONARV	<i>Convolvulus arvensis</i>	field bindweed	1	–	–	–	1
			2	–	3	1	2
			3	2	–	2	–
DACGLO	<i>Dactylis glomerata</i>	orchardgrass		–	–	3	–
KOCSCO	<i>Kochia scoparia</i>	kochia	1	9	3	8	2
			2	6	3	1	1
LACSER	<i>Lactuca serriola</i>	prickly lettuce	1	–	1	–	1
MARVUL	<i>Marrubium vulgare</i>	horehound	1	3	–	1	–
			2	8	–	30	–
			3	3	–	4	–
			NA	1	–	1	–
MEDSAT	<i>Medicago sativa</i>	alfalfa	1	1	–	3	–
			2	1	–	1	–
MELOFF	<i>Melilotus officinalis</i>	yellow sweetclover	1	18	–	12	–
			2	10	–	16	–
			3	1	–	–	–
			NA	1	–	1	–
POACOM	<i>Poa compressa</i>	canada bluegrass	2	1	–	2	–

Density Code Key: 1 = one to five individual plants; 2 = scattered patches; 3 = evenly distributed patches; 4 = matrix; X = non-detect.

Species Code	Scientific Name	Common Name	Density Code	Distance Class 1		Distance Class 2	
				2010	2013	2010	2013
POLCON	<i>Polygonum convolvulus</i>	climbing buckwheat	2	–	–	–	1
RUMCRI	<i>Rumex crispus</i>	curley dock	1	–	2	–	–
			2	–	–	–	1
SALTRA	<i>Salsola tragus</i>	prickly Russian thistle	1	20	24	18	16
			2	21	30	17	17
			NA	1	–	1	–
SCOLAC	<i>Scorzonera laciniata</i>	cutleaf vipergrass	1	–	–	2	–
			2	–	–	1	–
THIPON	<i>Thinopyrum ponticum</i>	rush wheatgrass	1	1	–	2	–
			2	1	–	4	–
TRADUB	<i>Tragopogon dubius</i>	western salsify	1	29	1	17	1
			2	13	–	53	–
			NA	1	–	1	–
TRAPRA2	<i>Tragopogon praetensis</i>	meadow salsify	1	5	–	7	–
			2	1	–	3	–
TRITER	<i>Tribulus terrestris</i>	puncturevine	1	–	3	–	–
ULMPUM	<i>Ulmus pumila</i>	Siberian elm	1	1	–	1	–
VERTHA	<i>Verbascum thapsus</i>	common mullein	1	1	–	4	1
			2	–	–	3	–

Density Code Key: 1 = one to five individual plants; 2 = scattered patches; 3 = evenly distributed patches; 4 = matrix; X = non-detect.

Table 7 is included for the benefit of those resource managers with an active exotic management program. This table lists the specific species found in each vector block and the Density Code of that species in each Distance Class. The comparison of current detections to that those from 2010 underscores the current drought effect – the more herbaceous species have disappeared, while the drought tolerant exotics (ie: bindweed, kochia, prickly Russian thistle) appear and often have increased.

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class.

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
201L	<i>Bromus lanceolatus</i>	Mediterranean brome	0	2	0	0				
	<i>Chenopodium album</i>	common lambsquarters	0	2	0	0	2	2	0	0
	<i>Medicago sativa</i>	alfalfa	0	2	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	2	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	0				
	<i>Tragopogon dubius</i>	western salsify	0	1	0	0				
201R	<i>Bromus lanceolatus</i>	Mediterranean brome	2	0	0	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	0	1	X				
	<i>Chenopodium album</i>	common lambsquarters	2	2	0	X				
	<i>Dactylis glomerata</i>	orchardgrass	0	0	2	X				
	<i>Kochia scoparia</i>	kochia	2	1	0	X				
	<i>Medicago sativa</i>	alfalfa	2	1	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	2	1	0	X				
	N/A	No Plant					0	0	0	0
	<i>Poa compressa</i>	Canada bluegrass	0	0	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	1	1	X				
	<i>Tragopogon dubius</i>	western salsify	1	1	0	X				
202L	<i>Bromus lanceolatus</i>	Mediterranean brome	0	2	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	0	0				
	<i>Chenopodium album</i>	common lambsquarters	0	2	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					0	1	0	0
202R	<i>Camelina microcarpa</i>	smallseed false flax	0	0	2	2				
	<i>Chenopodium album</i>	common lambsquarters					1	2	0	0
	<i>Cirsium arvense</i>	canada thistle	1	0	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	2	2				
	<i>Poa compressa</i>	Canada bluegrass	0	2	2	0				
	<i>Salsola tragus</i>	prickly Russian thistle	0	0	1	0	0	1	0	0
	<i>Verbascum thapsus</i>	common mullein	0	0	1	0				
203L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Chenopodium album</i>	common lambsquarters					2	1	0	0
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	0				
203R	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	2				
	<i>Cirsium vulgare</i>	bull thistle	0	0	1	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	2	2	0	0				
	N/A	No Plant					0	0	0	0

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
203R (cont.)	<i>Poa compressa</i>	Canada bluegrass	2	2	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	1	0				
	<i>Thinopyrum ponticum</i>	rush wheatgrass	0	1	0	0				
	<i>Tragopogon dubius</i>	western salsify	0	0	1	0				
204L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Chenopodium album</i>	common lambsquarters					2	1	0	0
	<i>Cirsium arvense</i>	canada thistle	0	1	0	0				
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
204R	<i>Camelina microcarpa</i>	smallseed false flax	1	2	2	X				
	<i>Chenopodium album</i>	common lambsquarters					1	1	0	0
	<i>Cirsium arvense</i>	canada thistle	0	1	1	X				
	<i>Dactylis glomerata</i>	orchardgrass	0	1	0	X				
	<i>Kochia scoparia</i>	kochia	1	0	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	2	2	X	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	1	X				
	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
205L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Chenopodium album</i>	common lambsquarters					2	1	0	0
	<i>Cirsium arvense</i>	canada thistle	1	1	1	0				
	<i>Dactylis glomerata</i>	orchardgrass	0	1	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	2	0				
205R	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	X				
	<i>Chenopodium album</i>	common lambsquarters					1	2	1	0
	<i>Cirsium arvense</i>	canada thistle	0	1	0	X				
	<i>Convolvulus arvensis</i>	field bindweed					2	2	0	0
	<i>Dactylis glomerata</i>	orchardgrass	0	1	0	X				
	<i>Kochia scoparia</i>	kochia	1	1	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	1	X	2	2	1	0
	<i>Tragopogon dubius</i>	western salsify	1	2	0	X				
	<i>Verbascum thapsus</i>	common mullein	0	1	0	X				
206L	<i>Bromus lanceolatus</i>	Mediterranean brome	0	2	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Cirsium arvense</i>	canada thistle	0	2	0	0				
	<i>Convolvulus arvensis</i>	field bindweed	3	3	0	0	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	2	0				
206R	<i>Camelina microcarpa</i>	smallseed false flax	0	1	X	X				
	<i>Convolvulus arvensis</i>	field bindweed	3	3	X	X	2	2	0	0
	<i>Kochia scoparia</i>	kochia	1	0	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	X	X				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
206R (cont.)	<i>Salsola tragus</i>	prickly Russian thistle	0	2	X	X	1	2	1	0
	<i>Verbascum thapsus</i>	common mullein	0	2	X	X				
207L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Cirsium arvense</i>	canada thistle	0	1	1	0				
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	0	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	2	0				
207R	<i>Camelina microcarpa</i>	smallseed false flax	1	2	X	X				
	<i>Cirsium arvense</i>	canada thistle	0	2	X	X				
	<i>Kochia scoparia</i>	kochia	0	1	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	2	2	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	X	X	1	0	0	0
	<i>Thinopyrum ponticum</i>	rush wheatgrass	2	0	X	X				
	<i>Tragopogon dubius</i>	western salsify	2	2	X	X				
	<i>Verbascum thapsus</i>	common mullein	0	1	X	X				
208L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	N/A	No Plant					0	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	2	0				
208R	<i>Camelina microcarpa</i>	smallseed false flax	0	1	2	X				
	<i>Cirsium arvense</i>	canada thistle	0	1	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	2	X				
	N/A	No Plant					0	0	X	X
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	X				
	<i>Tragopogon dubius</i>	western salsify	2	2	1	X				
209L	<i>Bromus lanceolatus</i>	Mediterranean brome	2	2	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Cirsium arvense</i>	canada thistle	0	2	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
	<i>Verbascum thapsus</i>	common mullein	0	2	2	0				
209R	<i>Camelina microcarpa</i>	smallseed false flax	2	2	X	X				
	<i>Chenopodium album</i>	common lambsquarters					2	2	X	X
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle					0	1	X	X
	<i>Tragopogon dubius</i>	western salsify	2	1	X	X				
	<i>Verbascum thapsus</i>	common mullein	1	0	X	X				
210L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	2				
	<i>Chenopodium album</i>	common lambsquarters	0	1	0	0				
	<i>Cirsium arvense</i>	canada thistle	0	0	2	0				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Thinopyrum ponticum</i>	rush wheatgrass	0	2	2	0				
	<i>Tragopogon dubius</i>	western salsify	1	2	2	2				
	<i>Verbascum thapsus</i>	common mullein	0	0	2	0				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
210R	<i>Camelina microcarpa</i>	smallseed false flax	0	2	X	X				
	<i>Cirsium vulgare</i>	bull thistle	0	1	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	1	X	X				
	N/A	No Plant					0	0	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	X	X				
211L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	2				
	<i>Chenopodium album</i>	common lambsquarters					1	0	0	0
	<i>Cirsium arvense</i>	canada thistle	0	2	0	0				
	<i>Convolvulus arvensis</i>	field bindweed	0	2	2	0	0	1	0	0
	<i>Kochia scoparia</i>	kochia	0	1	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	0	0				
	<i>Rumex crispus</i>	curly dock					1	0	0	0
	<i>Salsola tragus</i>	prickly Russian thistle					0	1	0	0
	<i>Thinopyrum ponticum</i>	rush wheatgrass	0	2	2	0				
	<i>Tragopogon dubius</i>	western salsify	1	2	2	2				
211R	<i>Camelina microcarpa</i>	smallseed false flax	1	2	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	1	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Thinopyrum ponticum</i>	rush wheatgrass	0	2	X	X				
	<i>Tragopogon dubius</i>	western salsify	1	2	X	X				
212L	<i>Asparagus officinalis</i>	garden asparagus	0	1	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	0	0				
	<i>Chenopodium album</i>	common lambsquarters					2	0	0	0
	<i>Medicago sativa</i>	alfalfa	0	1	0	0				
	<i>Rumex crispus</i>	curly dock					0	2	0	0
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	0	1	1	0	0
	<i>Scorzonera laciniata</i>	cutleaf vipergrass	0	1	0	0				
	<i>Thinopyrum ponticum</i>	rush wheatgrass	0	2	0	0				
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0	1	0	0	0
	<i>Tragopogon pratensis</i>	meadow salsify	0	1	0	0				
	<i>Tribulus terrestris</i>	puncturevine					1	0	0	0
212R	<i>Asparagus officinalis</i>	garden asparagus	1	0	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	1	X	X				
	N/A	No Plant					0	0	0	0
	<i>Thinopyrum ponticum</i>	rush wheatgrass	1	1	X	X				
	<i>Tragopogon dubius</i>	western salsify	1	2	X	X				
	<i>Tragopogon pratensis</i>	meadow salsify	0	1	X	X				
213L	<i>Asparagus officinalis</i>	garden asparagus	0	2	X	X				
	<i>Bromus lanceolatus</i>	Mediterranean brome	0	2	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	X	X				
	<i>Chenopodium album</i>	common lambsquarters					1	0	0	0

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
213L (cont.)	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	X	X				
	<i>Rumex crispus</i>	curly dock					1	0	0	0
	<i>Salsola tragus</i>	prickly Russian thistle	0	2	X	X	1	0	0	0
	<i>Scorzonera laciniata</i>	cutleaf vipergrass	0	1	X	X				
213R	<i>Asparagus officinalis</i>	garden asparagus	1	0	X	X				
	<i>Bromus japonicus</i>	Japanese brome	2	0	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	2	1	X	X				
	<i>Chenopodium album</i>	common lambsquarters					1	0	0	0
	<i>Kochia scoparia</i>	kochia	0	1	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	X	X				
214L	<i>Bromus japonicus</i>	Japanese brome	0	2	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	X	X				
	<i>Chenopodium album</i>	common lambsquarters					2	2	0	0
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	X	X	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	X	X				
214R	<i>Bromus japonicus</i>	Japanese brome	2	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	1	2	2	2				
	<i>Chenopodium album</i>	common lambsquarters					2	2	0	0
	<i>Kochia scoparia</i>	kochia	1	0	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	1	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	0	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	2	0				
	<i>Tragopogon pratensis</i>	meadow salsify	0	1	0	0				
215L	<i>Asparagus officinalis</i>	garden asparagus	0	1	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	X	X				
	<i>Chenopodium album</i>	common lambsquarters	0	2	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle					2	0	0	0
	<i>Scorzonera laciniata</i>	cutleaf vipergrass	0	2	X	X				
	<i>Tragopogon dubius</i>	western salsify	0	2	X	X				
215R	<i>Bromus japonicus</i>	Japanese brome	1	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	2				
	<i>Chenopodium album</i>	common lambsquarters					1	1	0	0
	<i>Kochia scoparia</i>	kochia	1	0	0	0				
	<i>Lactuca serriola</i>	prickly lettuce					1	1	0	0
	<i>Melilotus officinalis</i>	yellow sweetclover	2	0	0	0				
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
	<i>Tragopogon pratensis</i>	meadow salsify	0	2	0	0				
216L	<i>Asparagus officinalis</i>	garden asparagus	0	1	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	2	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle	0	1	X	X	1	2	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	X	X				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
216R	<i>Camelina microcarpa</i>	smallseed false flax	0	1	0	1				
	<i>Kochia scoparia</i>	kochia	0	1	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Tragopogon pratensis</i>	meadow salsify	0	1	0	0				
217L	<i>Bromus tectorum</i>	cheatgrass	0	2	0	0				
	<i>Cirsium arvense</i>	canada thistle	0	2	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	0	0				
	N/A	No Plant					0	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	1	0	0				
	<i>Tragopogon pratensis</i>	meadow salsify	0	2	2	0				
	<i>Verbascum thapsus</i>	common mullein	0	2	0	0				
217R	<i>Bromus japonicus</i>	Japanese brome	2	2	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	1	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	2	1	0	1				
	N/A	No Plant					0	0	0	0
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0				
	<i>Tragopogon dubius</i>	western salsify	1	1	0	1				
	<i>Tragopogon pratensis</i>	meadow salsify	1	1	0	0				
218L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	X				
	<i>Kochia scoparia</i>	kochia	2	2	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	X	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	0	X				
	<i>Tragopogon pratensis</i>	meadow salsify	0	2	0	X				
218R	<i>Bromus lanceolatus</i>	Mediterranean brome	2	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	1	1	1	0				
	<i>Kochia scoparia</i>	kochia	2	0	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	1	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	1	0				
219L	<i>Asparagus officinalis</i>	garden asparagus	0	1	2	X				
	<i>Camelina microcarpa</i>	smallseed false flax	1	2	2	X				
	<i>Kochia scoparia</i>	kochia	2	0	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	0	X				
	N/A	No Plant					0	0	0	0
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	X				
	<i>Tragopogon dubius</i>	western salsify	0	2	0	X				
219R	<i>Bromus japonicus</i>	Japanese brome	1	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	1	2	1	0				
	<i>Kochia scoparia</i>	kochia	1	0	0	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	0	0	1	0				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
219R (cont.)	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	1	0				
220L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0	1	0	0	0
	<i>Cirsium arvense</i>	canada thistle	0	0	1	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0				
	<i>Tragopogon dubius</i>	western salsify	2	2	0	0				
220R	<i>Camelina microcarpa</i>	smallseed false flax	2	2	1	1				
	<i>Marrubium vulgare</i>	horehound	0	2	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	1	1	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	0	0				
	<i>Tragopogon pratensis</i>	meadow salsify	1	0	0	0				
221L	<i>Asparagus officinalis</i>	garden asparagus	0	0	2	2				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	0				
	<i>Chenopodium album</i>	common lambsquarters	1	1	0	0	2	2	0	0
	<i>Kochia scoparia</i>	kochia	2	0	0	0				
	<i>Marrubium vulgare</i>	horehound	0	2	3	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
	<i>Tragopogon pratensis</i>	meadow salsify	2	0	0	0				
221R	<i>Camelina microcarpa</i>	smallseed false flax	1	2	1	0				
	<i>Kochia scoparia</i>	kochia	2	0	0	0				
	<i>Marrubium vulgare</i>	horehound	0	2	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	0	1				
222L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	X				
	<i>Chenopodium album</i>	common lambsquarters	1	2	0	X	1	2	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	X				
	<i>Medicago sativa</i>	alfalfa	1	1	0	X				
	<i>Tragopogon dubius</i>	western salsify	0	2	2	X				
222R	<i>Bromus lanceolatus</i>	Mediterranean brome	1	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	1	0				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0				
	<i>Marrubium vulgare</i>	horehound	3	3	2	2				
	N/A	No Plant					0	0	0	0
	<i>Salsola tragus</i>	prickly Russian thistle	2	1	0	0				
	<i>Tragopogon dubius</i>	western salsify	1	2	0	0				
223L	<i>Camelina microcarpa</i>	smallseed false flax	0	1	2	X				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	X				
	<i>Marrubium vulgare</i>	horehound	0	2	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	1	0	X	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	0	X				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
223R	<i>Camelina microcarpa</i>	smallseed false flax	0	0	1	1				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0				
	<i>Marrubium vulgare</i>	horehound	3	3	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle					1	1	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	1	0				
224L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	3	X				
	<i>Chenopodium album</i>	common lambsquarters					2	0	0	0
	<i>Melilotus officinalis</i>	yellow sweetclover	0	2	0	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	2	0	X	2	1	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	0	X				
	<i>Tragopogon pratensis</i>	meadow salsify	0	1	0	X				
224R	<i>Marrubium vulgare</i>	horehound	2	2	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	2	1	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	0	0				
	<i>Tragopogon pratensis</i>	meadow salsify	1	0	0	0				
225L	<i>Camelina microcarpa</i>	smallseed false flax	0	2	2	X				
	<i>Chenopodium album</i>	common lambsquarters					2	1	0	0
	<i>Cirsium arvense</i>	canada thistle	0	2	0	X				
	<i>Marrubium vulgare</i>	horehound	0	2	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	1	0	X	2	1	0	0
	<i>Tragopogon dubius</i>	western salsify	1	1	2	X				
225R	<i>Chenopodium album</i>	common lambsquarters					1	2	0	0
	<i>Marrubium vulgare</i>	horehound	2	3	3	3				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	1	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	0	0				
226L	<i>Camelina microcarpa</i>	smallseed false flax	0	1	1	X				
	<i>Chenopodium album</i>	common lambsquarters	1	1	0	X	1	0	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	1	0	X	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	1	X				
226R	<i>Chenopodium album</i>	common lambsquarters					2	2	0	0
	<i>Kochia scoparia</i>	kochia	1	0	0	0	2	1	0	0
	<i>Marrubium vulgare</i>	horehound	2	2	3	2				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	1	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	1	1				
227L	<i>Chenopodium album</i>	common lambsquarters	1	1	0	X	2	0	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	1	0	X	2	1	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	X				
227R	<i>Chenopodium album</i>	common lambsquarters					2	0	0	0
	<i>Kochia scoparia</i>	kochia					1	0	0	0

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
227R (cont.)	<i>Marrubium vulgare</i>	horehound	NA	NA	NA	NA				
	<i>Melilotus officinalis</i>	yellow sweetclover	NA	NA	NA	NA				
	<i>Salsola tragus</i>	prickly Russian thistle	NA	NA	NA	NA	1	1	1	0
	<i>Tragopogon dubius</i>	western salsify	NA	NA	NA	NA				
228L	<i>Chenopodium album</i>	common lambsquarters					1	0	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	X	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	X				
	<i>Tribulus terrestris</i>	puncturevine					1	0	0	0
228R	<i>Chenopodium album</i>	common lambsquarters					2	2	0	0
	<i>Marrubium vulgare</i>	horehound	3	3	3	3				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	2	2	0
	<i>Tragopogon dubius</i>	western salsify	2	2	1	2				
229L	<i>Bromus japonicus</i>	Japanese brome	0	2	0	X				
	<i>Chenopodium album</i>	common lambsquarters	0	1	0	X	1	0	0	0
	<i>Kochia scoparia</i>	kochia	0	1	0	X				
	<i>Marrubium vulgare</i>	horehound	0	2	2	X				
	<i>Polygonum convolvulus</i>	climbing buckwheat					0	2	0	0
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	2	X				
	<i>Tribulus terrestris</i>	puncturevine					1	0	0	0
	<i>Verbascum thapsus</i>	common mullein	0	1	1	X				
229R	<i>Chenopodium album</i>	common lambsquarters					2	1	0	0
	<i>Kochia scoparia</i>	kochia	1	0	0	0				
	<i>Marrubium vulgare</i>	horehound	2	2	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0				
	<i>Tragopogon dubius</i>	western salsify	1	2	1	0				
230L	<i>Bromus japonicus</i>	Japanese brome	1	2	X	X				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	X	X				
	<i>Chenopodium album</i>	common lambsquarters	0	2	X	X	2	2	0	0
	<i>Kochia scoparia</i>	kochia	1	0	X	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	X	X				
	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	X	X	0	1	0	0
230R	<i>Bromus japonicus</i>	Japanese brome	2	2	0	0				
	<i>Bromus lanceolatus</i>	Mediterranean brome	1	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	1	1	0	0				
	<i>Chenopodium album</i>	common lambsquarters					2	0	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	2				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	1	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	1	1				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
231L	<i>Bromus japonicus</i>	Japanese brome	2	0	0	0				
	<i>Bromus lanceolatus</i>	Mediterranean brome	0	2	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	2	0	0				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0	2	2	0	0
	<i>Kochia scoparia</i>	kochia	0	1	0	0				
	<i>Marrubium vulgare</i>	horehound	0	2	2	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	1	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	0	2	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	2	2				
231R	<i>Bromus japonicus</i>	Japanese brome	2	0	0	0				
	<i>Bromus lanceolatus</i>	Mediterranean brome	1	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	1	2	1	0				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0	2	2	0	0
	<i>Marrubium vulgare</i>	horehound	2	2	2	0				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	1	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	1	0	2	0				
232L	<i>Chenopodium album</i>	common lambsquarters	0	1	0	0	2	2	0	0
	<i>Melilotus officinalis</i>	yellow sweetclover	1	1	1	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	0	0				
	<i>Verbascum thapsus</i>	common mullein	0	1	0	0				
232R	<i>Bromus japonicus</i>	Japanese brome	0	2	1	0				
	<i>Chenopodium album</i>	common lambsquarters	0	1	0	0	2	1	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	1	0				
233L	<i>Bromus japonicus</i>	Japanese brome	2	2	0	0				
	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0	2	1	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	2	0				
233R	<i>Bromus japonicus</i>	Japanese brome	2	0	0	0				
	<i>Camelina microcarpa</i>	smallseed false flax	0	1	0	0				
	<i>Chenopodium album</i>	common lambsquarters					1	1	0	0
	<i>Melilotus officinalis</i>	yellow sweetclover	2	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	1	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	2	2	0	0				
234L	<i>Chenopodium album</i>	common lambsquarters					2	2	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	2				
	<i>Melilotus officinalis</i>	yellow sweetclover	2	2	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
234R	<i>Bromus japonicus</i>	Japanese brome	0	1	0	X				
	<i>Chenopodium album</i>	common lambsquarters					1	1	0	0
	<i>Melilotus officinalis</i>	yellow sweetclover	2	0	0	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	X				
	<i>Tragopogon dubius</i>	western salsify	2	1	0	X				
235L	<i>Chenopodium album</i>	common lambsquarters					2	2	2	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	3				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle					2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	2	2				
	<i>Ulmus pumila</i>	Siberian elm	1	1	0	0				
235R	<i>Chenopodium album</i>	common lambsquarters					2	2	1	0
	<i>Marrubium vulgare</i>	horehound	1	1	0	X				
	<i>Melilotus officinalis</i>	yellow sweetclover	3	2	0	X				
	<i>Salsola tragus</i>	prickly Russian thistle	1	2	0	X	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	0	1	0	X				
236L	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0	2	2	2	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	3				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
	<i>Tragopogon pratensis</i>	meadow salsify	1	0	0	0				
236R	<i>Bromus japonicus</i>	Japanese brome	2	2	2	X				
	<i>Chenopodium album</i>	common lambsquarters	2	0	0	X	2	2	0	0
	<i>Marrubium vulgare</i>	horehound	2	2	2	X				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	1	X	1	1	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	0	X				
237L	<i>Bromus japonicus</i>	Japanese brome	2	2	0	0				
	<i>Chenopodium album</i>	common lambsquarters	0	2	2	0	1	2	0	0
	<i>Marrubium vulgare</i>	horehound	1	2	3	3				
	<i>Salsola tragus</i>	prickly Russian thistle					2	0	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
	<i>Tragopogon pratensis</i>	meadow salsify	1	1	0	0				
237R	<i>Bromus japonicus</i>	Japanese brome	2	0	0	0				
	<i>Chenopodium album</i>	common lambsquarters	2	2	0	0				
	<i>Marrubium vulgare</i>	horehound	2	2	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	1	0	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	0	0				
238L	<i>Bromus japonicus</i>	Japanese brome	2	2	0	0				
	<i>Chenopodium album</i>	common lambsquarters					2	2	0	0
	<i>Marrubium vulgare</i>	horehound	1	2	3	3				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	1	0	0
	<i>Tragopogon dubius</i>	western salsify	1	2	2	0				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

Table 7. Comparison of 2010 vs. 2013 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2010				2013			
			D1	D2	D3	D4	D1	D2	D3	D4
238R	<i>Marrubium vulgare</i>	horehound	2	2	2	2				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	0	1	0	0
	<i>Tragopogon dubius</i>	western salsify	1	1	0	0				
	<i>Verbascum thapsus</i>	common mullein	0	0	0	1				
239L	<i>Bromus japonicus</i>	Japanese brome	2	0	0	0				
	<i>Chenopodium album</i>	common lambsquarters					2	2	2	0
	<i>Kochia scoparia</i>	kochia					2	0	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	2				
	<i>Melilotus officinalis</i>	yellow sweetclover	1	0	0	0				
	<i>Salsola tragus</i>	prickly Russian thistle	1	1	0	0	2	2	1	0
	<i>Tragopogon dubius</i>	western salsify	1	2	2	0				
239R	<i>Chenopodium album</i>	common lambsquarters					2	2	2	0
	<i>Kochia scoparia</i>	kochia					1	1	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	2				
	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0				
	<i>Tragopogon dubius</i>	western salsify	1	2	1	0				
240L	<i>Chenopodium album</i>	common lambsquarters					2	0	2	0
	<i>Kochia scoparia</i>	kochia					2	2	2	0
	<i>Marrubium vulgare</i>	horehound	0	2	3	3				
	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	2	0	0
	<i>Tragopogon dubius</i>	western salsify	0	2	2	0				
240R	<i>Camelina microcarpa</i>	smallseed false flax	0	0	1	0				
	<i>Chenopodium album</i>	common lambsquarters					2	2	2	0
	<i>Kochia scoparia</i>	kochia					1	0	0	0
	<i>Marrubium vulgare</i>	horehound	0	2	2	0				
	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	2	2	2	0
	<i>Tragopogon dubius</i>	western salsify	0	1	0	0				

Distance Class Key: D1 = edge of vector to 2 meters into the landscape (or inner edge of mow line); D2 = interior edge of D1 to 10 meters; D3 & D4 = each additional 10 meters into the landscape.

Density Code Key: 0 = no plants; 1 = 1–5 plants; 2 = scattered patches; 3 = even distributed patches; 4 = matrix; X = non-detect

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