



Capulin Volcano National Monument

Southern Plains Network and Southern Plains Fire Group 2014 Vegetation Monitoring Data Summary



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ON THE COVER

View of Capulin Volcano. NPS Photo.

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Introduction

This report contains a data summary of results from all vegetation monitoring conducted by the Southern Plains I&M Network (SOPN) and the Southern Plains Fire Group (SPFG) during 2014 at Capulin Volcano National Monument (CAVO). Data summaries are used to impart current monitoring data until enough years of data have been collected to facilitate trend analysis. More detailed synthesis reports will be produced in 2015-2017.

Grassland Monitoring Results

Grassland monitoring occurred during late July of 2014 (Table 1). Data from four (4) 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 permanent 50-meter transects containing five 2x1-meter plots. Species composition, relative cover and ground strata are collected during annual visits. Additional data is collected during visits that support the SPFG program.

Table 1. Plant community and sampling dates for each transect at Capulin Volcano NM in 2014.

Group	Transect	Plant community	Date
Pinyon-Juniper	PJ-03	Rocky Mountain Juniper/Little Bluestem Lava Woodland Savanna	08/01
	PJ-LT03	Rocky Mountain Juniper/Little Bluestem Lava Woodland Savanna	07/31
Shortgrass	STEP-LT02	Big Bluestem-Little Bluestem Lava Grassland	07/31
	STEP-LT03	Blue Grama Shortgrass Steppe	07/31

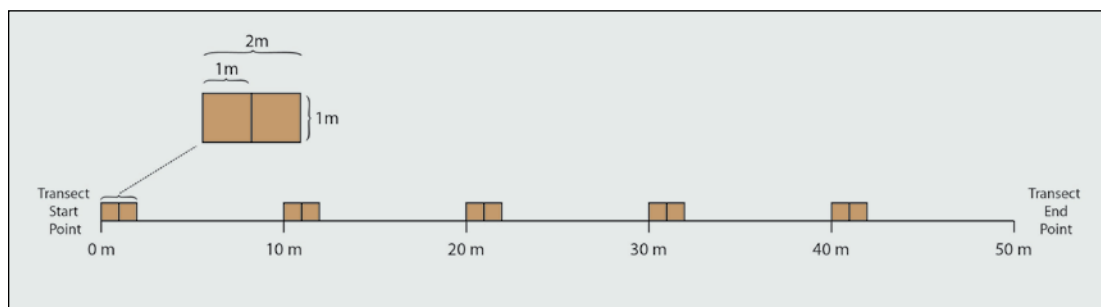


Figure 1. Layout of plots within each permanent transect.

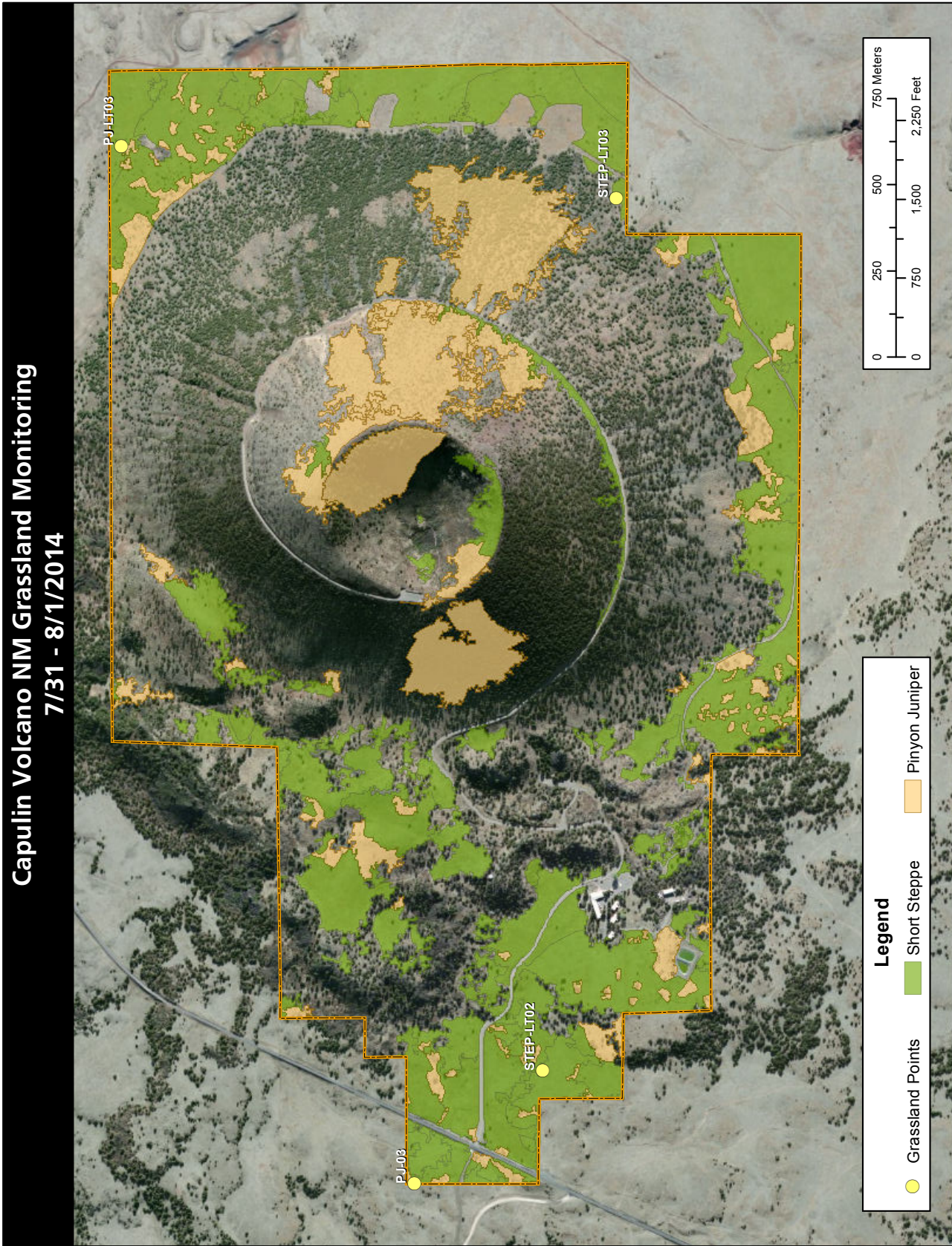


Figure 2. Location of each permanent grassland plot at CAVO monitored in 2014

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 CAVO in 2014 can be found in Table 2.

Table 3 contains numerical results of 2014 grassland monitoring at CAVO. Each transect contains five plots. Frequency reflects the number of plots in each transect where a particular 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.

Table 2. Ground strata type and percentage for each transect monitored at CAVO in 2014.

Cover	Pinyon–Juniper Community		Shortgrass Community	
	PJ-03	PJ-LT03	STEP-LT02	STEP-LT03
SOIOPEN	10.2	14.8	11.8	1
SOILUNDER	4.2	3.6	10	0.4
LITTER	59.4	54	69.8	55.6
WOOD	0	0	0	9.6
ROCKSM	5.6	8	2.4	32
ROCKLG	18	15.2	5.4	1.4
LICHEN	2	4.2	1.2	0
MOSS	0.8	0.2	1.4	0
CRUST	0	0	0	0

Table 3. Species cover sum and frequency for each permanent transect monitored at CAVO in 2014. Exotic species are highlighted in pink.

Species Code	Pinyon–Juniper Community				Shortgrass Community			
	PJ-03		PJ-LT03		STEP-LT02		STEP-LT03	
	Cover Sum	Frequency	Cover Sum	Frequency	Cover Sum	Frequency	Cover Sum	Frequency
Forb								
AMAHYB					1	1	11	2
ARTCAR	3.5	5	3	4	1.5	2		
ARTFRI	2	2	4	4	1	1		
ARTLUD			0.5	1				
CHAERI			1	1				
CHASER2			0.5	1	0.5	1		
CHELEP			1	1				
CHEPRA					0.5	1		
CIRUND					1	1		
CONCAN					0.5	1		
DALPUR	0.5	1						
ERIALA	1	2			0.5	1		
ERIFLA			1	1				
ERIJAM	1	1	3	1				
ERYCAP	1	2	1	1				
GAUCOC	0.5	1	1	1				
GUTSAR	0.5	1			0.5	1		
HETVIL	2	3	3	1	1	1		
LACSER					0.5	1		
LIAPUN	1	2			0.5	1		
LUPARG	1.5	2						
OENCAE	0.5	1			1	1		
PACNEO	1.5	3			0.5	1		
PECANG							5	1
PENANG			0.5	1				
POROLE			1	2				
SALTRA			4.5	3	1	1	1.5	2
SENSPA	0.5	1						
SPHCOC					1.5	2		
STEMIN					0.5	1		
THEMEG					0.5	1		
VERTHA					3	1		
Grass								
ANDGER	6	3	1	2	4	2	0.5	1
ARIDIV							1	1
ARIPUR	0.5	1			3	1		
BOUCUR	3.5	4	17	4	4.5	3	1	1
BOUGRA	98	5	35	5	86	5		
BROJAP			1	1				
BROPOR							1.5	2
ELYELY	0.5	1	1	1	2	2		
FESARI	1	1	0.5	1				
LYCSET			0.5	1	2	2		

Table 3. Species cover sum and frequency for each permanent transect monitored at CAVO in 2014. Exotic species are highlighted in pink (continued).

Species Code	Pinyon–Juniper Community				Shortgrass Community			
	PJ-03		PJ-LT03		STEP-LT02		STEP-LT03	
	Cover Sum	Frequency	Cover Sum	Frequency	Cover Sum	Frequency	Cover Sum	Frequency
MUHMOM	0.5	1			8.5	3		
MUHTOR					0.5	1		
PASSMI			9	4	4.5	4	0.5	1
POAFEN			1	1				
SCHSCO	8.5	5	8	2	3	1		
SPOCRY			0.5	1				
Shrub								
RHUTRI							18	2
YUCGLA			22	2			10	3
Subshrub								
ECHVIR	1	2			1	1		
Tree								
PINEDU			1	1				
QUEGAM							122	2
Vine								
VICAME	0.5	1						

Table 4. All plant species detected during grassland monitoring in 2011 and exotic monitoring in 2011 and 2014 at CAVO. Exotic species are highlighted in pink.

Species Code	LifeForm	Scientific Name	Common Name	Primary Duration
AMAHYB	Forb	<i>Amaranthus hybridus</i>	slim amaranth pigweed	Annual
ANDGER	Grass	<i>Andropogon gerardii</i>	big bluestem	Perennial
ARIDIV	Grass	<i>Aristida divaricata</i>	poverty threeawn	Perennial
ARIPUR	Grass	<i>Aristida purpurea</i>	purple threeawn	Perennial
ARTCAR	Forb	<i>Artemisia carruthii</i>	carruth's sagewort	Perennial
ARTFRI	Forb	<i>Artemisia frigida</i>	fringed sagebrush	Perennial
ARTLUD	Forb	<i>Artemisia ludoviciana</i>	louisiana sagewort	Perennial
BOUCUR	Grass	<i>Bouteloua curtipendula</i>	sideoats grama	Perennial
BOUGRA	Grass	<i>Bouteloua gracilis</i>	blue grama	Perennial
BROINE	Grass	<i>Bromus inermis</i>	smooth brome	Perennial
BROJAP	Grass	<i>Bromus japonicus</i>	japanese brome	Annual
BROPOR	Grass	<i>Bromus porteri</i>	porter brome	Perennial
BROTEC	Grass	<i>Bromus tectorum</i>	cheatgrass	Annual
CHAERI	Forb	<i>Chaetopappa ericoides</i>	baby white aster	Perennial
CHASER2	Forb	<i>Chamaesyce serpyllifolia</i>	thyme-leaf sandmat	Annual
CHEALB	Forb	<i>Chenopodium album</i>	common lambsquarters	Annual
CHELEP	Forb	<i>Chenopodium leptophyllum</i>	narrowleaf goosefoot	Annual
CHEPRA	Forb	<i>Chenopodium pratericola</i>	desert goosefoot	Annual
CIRUND	Forb	<i>Cirsium undulatum</i>	wavyleaf thistle	Biennial
CONCAN	Forb	<i>Conyza canadensis</i>	canada horseweed	Annual
DALPUR	Forb	<i>Dalea purpurea</i>	purple prairie clover	Perennial
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
ERIFLA	Forb	<i>Erigeron flagellaris</i>	trailing fleabane	Biennial
ERIJAM	Forb	<i>Eriogonum jamesii</i>	james buckwheat	Perennial
ERYCAP	Forb	<i>Erysimum capitatum</i>	western wallflower	Biennial
FESARI	Grass	<i>Festuca arizonica</i>	arizona fescue	Perennial
GAUCOC	Forb	<i>Gaura coccinea</i>	scarlet guara	Perennial
GUTSAR	Forb	<i>Gutierrezia sarothrae</i>	broom snakeweed	Perennial
HETVIL	Forb	<i>Heterotheca villosa</i>	hairy false goldenaster	Perennial
LACSER	Forb	<i>Lactuca serriola</i>	prickly lettuce	Annual
LIAPUN	Forb	<i>Liatris punctata</i>	dotted gayfeather	Perennial
LUPARG	Forb	<i>Lupinus argenteus</i>	silver lupine	Perennial
LYCSET	Grass	<i>Lycurus setosus</i>	bristly wolfstail	Perennial
MARVUL	Forb	<i>Marrubium vulgare</i>	horehound	Perennial
MUHMON	Grass	<i>Muhlenbergia montana</i>	mountain muhly	Perennial
MUHTOR	Grass	<i>Muhlenbergia torreyi</i>	ring muhly	Perennial
OENCAE	Forb	<i>Oenothera caespitosa</i>	tufted evening primrose	Perennial
PACNEO	Forb	<i>Packera neomexicana</i>	new mexico groundsel	Perennial
PASSMI	Grass	<i>Pascopyrum smithii</i>	western wheatgrass	Perennial

Table 4. All plant species detected during grassland monitoring in 2011 and exotic monitoring in 2011 and 2014 at CAVO. Exotic species are highlighted in pink. (continued).

Species Code	LifeForm	Scientific Name	Common Name	Primary Duration
PECANG	Forb	<i>Pectis angustifolia</i>	narrowleaf pectis	Annual
PENANG	Forb	<i>Penstemon angustifolius</i>	broad-beard penstemon	Perennial
PINEDU	Tree	<i>Pinus edulis</i>	pinyon pine	Perennial
POAFEN	Grass	<i>Poa fendleriana</i>	longtongue muttongrass	Perennial
POROLE	Forb	<i>Portulaca oleracea</i>	common purslane	Annual
QUEGAM	Tree	<i>Quercus gambelii</i>	gambel oak	Perennial
RHUTRI	Shrub	<i>Rhus trilobata</i>	skunkbush sumac	Perennial
SALTRA	Forb	<i>Salsola tragus</i>	prickly russian thistle	Annual
SCHSCO	Grass	<i>Schizachyrium scoparium</i>	little bluestem	Perennial
SENSPA	Forb	<i>Senecio spartioides</i>	broom groundsel	Perennial
SPHCOC	Forb	<i>Sphaeralcea coccinea</i>	scarlet globemallow	Perennial
SPOCRY	Grass	<i>Sporobolus cryptandrus</i>	sand dropseed	Perennial
STEMIN	Forb	<i>Stephanomeria minor</i>	lesser wirelettuce	Perennial
THEMEG	Forb	<i>Thelesperma megapotamicum</i>	hopi tea greenthread	Perennial
TRADUB	Forb	<i>Tragopogon dubius</i>	western salsify	Annual
VERTHA	Forb	<i>Verbascum thapsus</i>	common mullein	Biennial
VICAME	Vine	<i>Vicia americana</i>	american deervetch	Perennial
YUCGLA	Shrub	<i>Yucca glauca</i>	soft soapweed yucca	Perennial

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 discrete 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 17-18, 2014 and included the east and west Boca Trail (Figure 4). These vectors have been previously monitored early July, 2011. It should be noted that 2011 was the beginning of years of severe to exceptional drought, including early 2014. Data summarized in this report compares the results of 2014 monitoring to that detected in 2011.

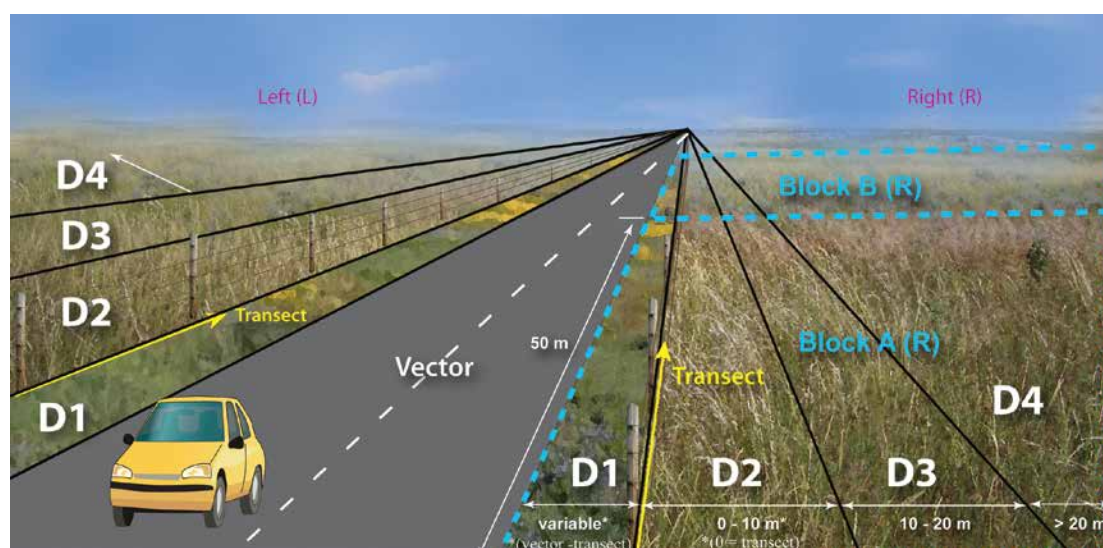


Figure 3. Layout of Vector Blocks and Distance Classes along a vector.

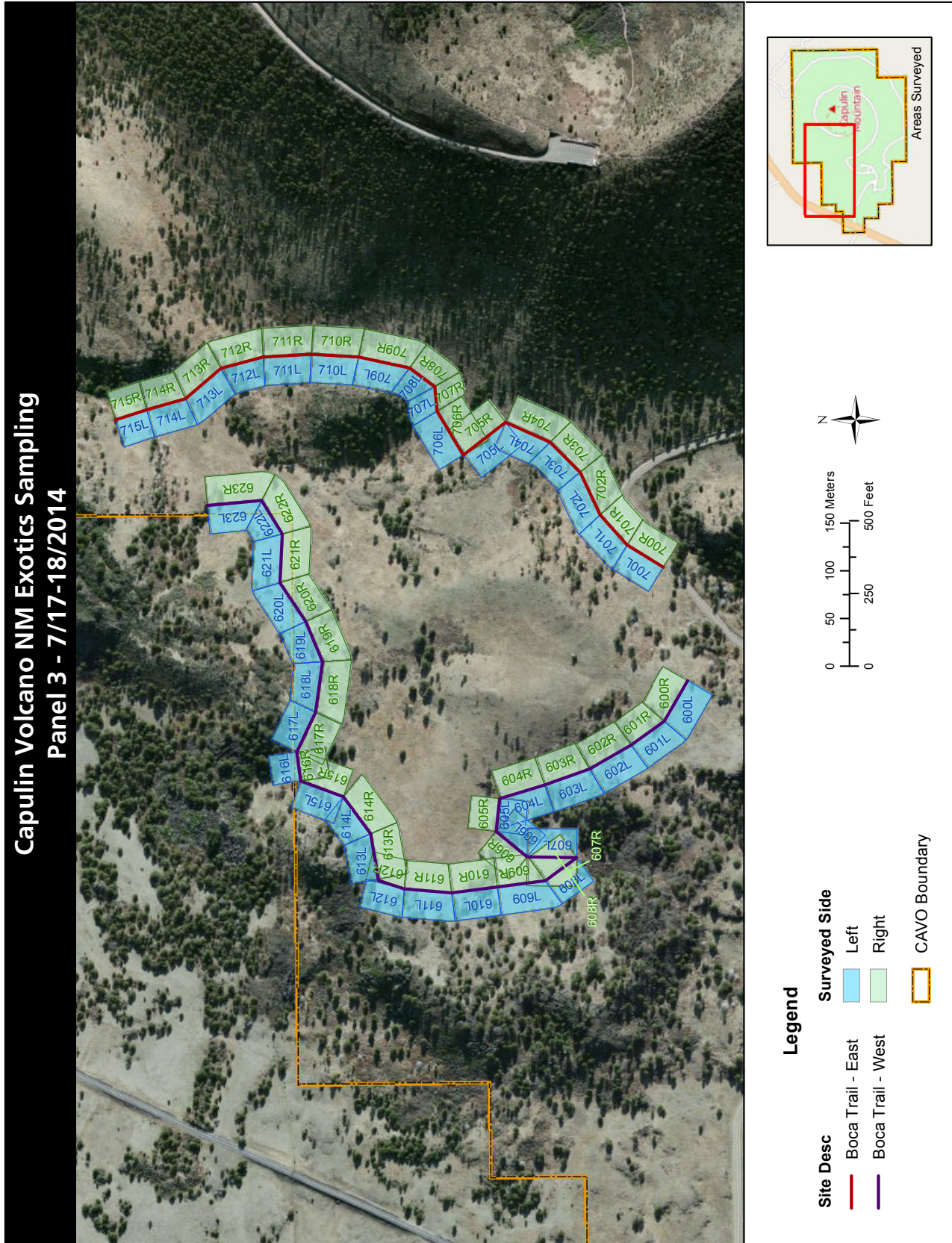


Figure 4. Panel 3 numbered vector blocks monitored at CAVO in both 2011 and 2014.

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=118) and transects (N=6)(Figure 5) in which these species were found.

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

Scientific Name	Common Name	2011		2014		2011		2014	
		Primary Blocks (N=80)		Primary Blocks (N=80)		Secondary Blocks (N=6)		Secondary Blocks (N=4)	
		Total	% Blocks	Total	% Blocks	Total	% Blocks	Total	% Blocks
<i>Bromus inermis</i>	smooth brome	1	1.25%	2	2.50%	–	–	–	–
<i>Bromus japonicus</i>	Japanese brome	–	–	13	16.25%	–	–	1	16.67%
<i>Bromus tectorum</i>	cheatgrass	4	5.00%	1	1.25%	–	–	–	–
<i>Chenopodium album</i>	lambsquarters	3	3.75%	–	–	–	–	–	–
<i>Lactuca serriola</i>	prickly lettuce	–	–	–	–	1	16.67%	1	16.67%
<i>Marrubium vulgare</i>	horehound	5	6.25%	4	5.00%	–	–	–	–
No Plant	No Plant	44	55.00%	17	21.25%	2	33.33%	1	16.67%
<i>Polygonum convolvulus</i>	black bindweed	–	–	–	–	–	–	–	–
<i>Salsola tragus</i>	prickly Russian thistle	27	33.75%	59	73.75%	3	50.00%	3	50.00%
<i>Tragopogon dubius</i>	yellow salsify	–	–	3	3.75%	–	–	–	–
<i>Verbascum thapsus</i>	common mullein	10	12.50%	23	28.75%	–	–	1	16.67%

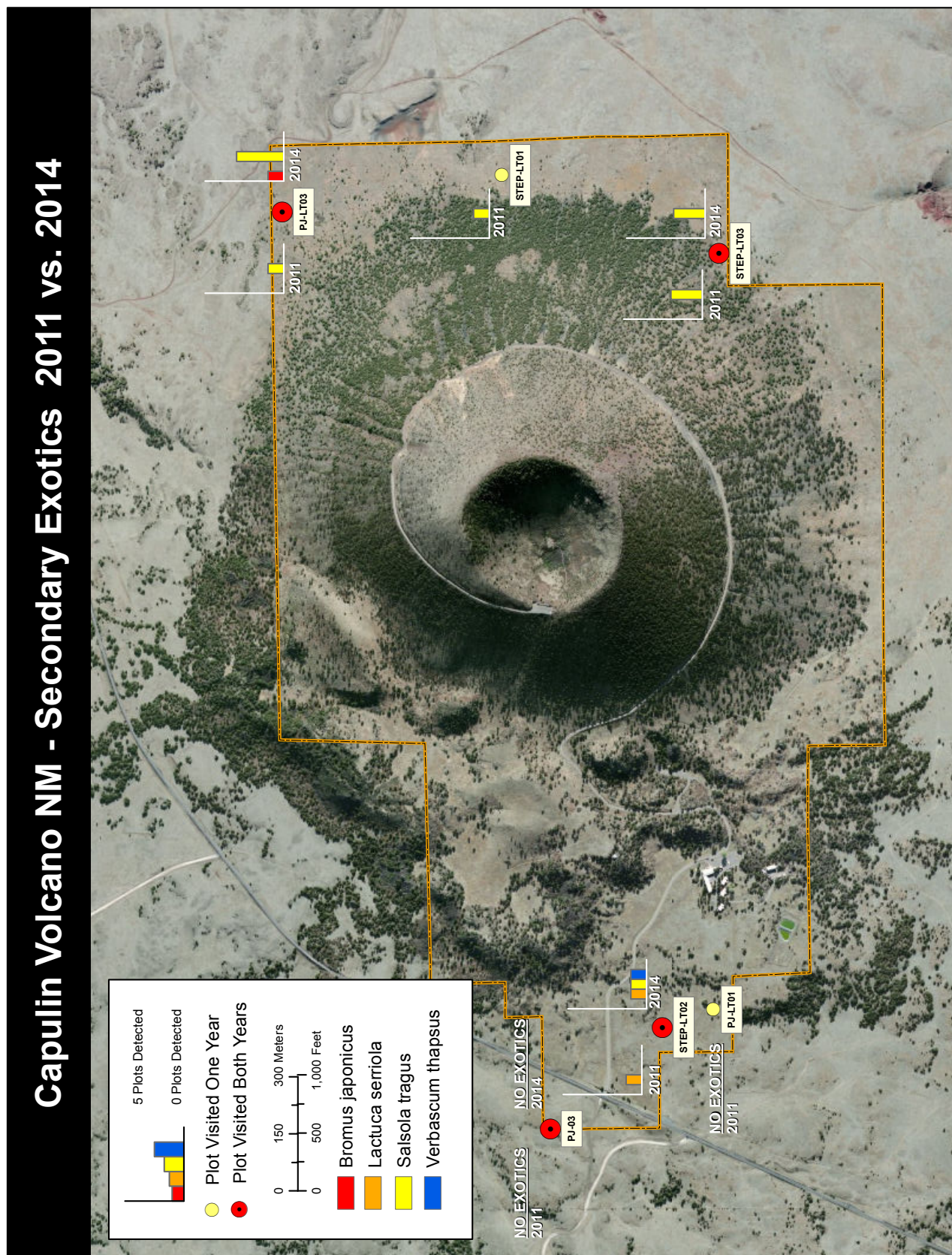


Figure 5. Comparison of exotics detected in 2011 and 2014 grassland monitoring permanent transects at CAVO.

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 2011 and 2014 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 2011 and 2014 in two Distance Classes.

Species Code	Scientific Name	Common Name	Density Code	Distance Class 1			Distance Class 2		
				2011	Same 2014	New 2014	2011	Same 2014	New 2014
BROINE	<i>Bromus inermis</i>	smooth brome	1	-	2		-	2	
BROJAP	<i>Bromus japonicus</i>	Japanese brome	1	-	4		-	3	
			2	-	6		-	7	
BROTEC	<i>Bromus tectorum</i>	cheatgrass	1	2	1		1	-	
CHEALB	<i>Chenopodium album</i>	common lambsquarters	1	1	-		1	-	
MARVUL	<i>Marrubium vulgare</i>	horehound	1	2	1		2	-	
			2	1	2		1	-	
SALTRA	<i>Salsola tragus</i>	prickly Russian thistle	1	6	7		4	1	
			2	15	46		18	41	
			3	-	-		-	3	
TRADUB	<i>Tragopogon dubius</i>	western salsify	1	-	2		-	1	
VERTHA	<i>Verbascum thapsus</i>	common mullein	1	3	11		6	10	
			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.

Table 7. Comparison of 2011 vs. 2014 detections for each individual Vector Block, detailing the given Density Code for each Distance Class.

Block	Scientific Name	Common Name	2011				2014			
			D1	D2	D3	D4	D1	D2	D3	D4
600L	<i>Marrubium vulgare</i>	horehound					0	1	0	0
600L	No Plant	no plant	0	0	0	0				
600L	<i>Salsola tragus</i>	prickly Russian thistle					0	1	0	2
600L	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
600R	<i>Bromus japonicus</i>	Japanese brome					0	2	0	0
600R	<i>Marrubium vulgare</i>	horehound	1	0	0	0	0	2	0	0
600R	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
600R	<i>Verbascum thapsus</i>	common mullein					2	0	0	0
601L	<i>Bromus japonicus</i>	Japanese brome					2	0	2	2
601L	<i>Bromus tectorum</i>	cheatgrass	0	1	0	0				
601L	<i>Marrubium vulgare</i>	horehound	2	2	2	0				
601L	<i>Salsola tragus</i>	prickly Russian thistle	0	2	2	0	2	1	2	2
601L	<i>Verbascum thapsus</i>	common mullein					1	0	0	0
601R	<i>Bromus japonicus</i>	Japanese brome					2	2	0	0
601R	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	0	2	0
602L	<i>Salsola tragus</i>	prickly Russian thistle	0	2	2	0	2	0	2	0
602R	No Plant	no plant	0	0	0	0				
602R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
603L	<i>Marrubium vulgare</i>	horehound	0	1	0	0				
603L	No Plant	no plant					0	0	0	0
603L	<i>Verbascum thapsus</i>	common mullein	0	1	0	0				
603R	<i>Salsola tragus</i>	prickly Russian thistle	0	2	0	0	2	2	0	0
604L	<i>Salsola tragus</i>	prickly Russian thistle	1	2	0	0	2	1	2	0
604R	<i>Bromus japonicus</i>	Japanese brome					1	0	0	0
604R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	1	0	0
605L	No Plant	no plant	0	0	X	X	0	0	0	0
605R	<i>Marrubium vulgare</i>	horehound	1	0	0	X				
605R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	X	2	0	2	2
605R	<i>Verbascum thapsus</i>	common mullein					0	0	0	1
606L	No Plant	no plant	0	0	0	0				
606L	<i>Salsola tragus</i>	prickly Russian thistle					1	1	0	0
606R	<i>Chenopodium album</i>	common lambsquarters	0	1	0	0				
606R	No Plant	no plant					0	0	0	0
607L	No Plant	no plant	0	0	0	0	0	0	0	0
607R	No Plant	no plant	0	0	0	0				
607R	<i>Salsola tragus</i>	prickly Russian thistle					0	0	2	2
608L	No Plant	no plant	0	0	0	0	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 2011 vs. 2014 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2011				2014			
			D1	D2	D3	D4	D1	D2	D3	D4
608R	No Plant	no plant	0	0	0	0	0	0	0	0
609L	<i>Chenopodium album</i>	common lambsquarters	0	0	1	0				
609L	No Plant	no plant					0	0	0	0
609L	<i>Verbascum thapsus</i>	common mullein	1	1	0	0				
609R	<i>Verbascum thapsus</i>	common mullein	0	1	0	0	0	1	0	0
610L	No Plant	no plant	0	X	X	X	0	0	0	0
610R	No Plant	no plant	0	0	0	0	0	0	0	0
611L	No Plant	no plant	0	X	X	X	0	0	0	0
611R	No Plant	no plant	0	0	0	0	0	0	0	0
612L	No Plant	no plant	0	X	X	X	0	0	0	0
612R	No Plant	no plant					0	0	0	0
612R	<i>Verbascum thapsus</i>	common mullein	1	0	0	0				
613L	No Plant	no plant	0	X	X	X	0	0	0	0
613R	No Plant	no plant	0	0	0	0	0	0	0	0
614L	No Plant	no plant	0	0	X	X				
614L	<i>Verbascum thapsus</i>	common mullein					2	0	0	0
614R	<i>Bromus japonicus</i>	Japanese brome					2	0	2	0
614R	No Plant	no plant	0	0	0	0				
615L	<i>Bromus japonicus</i>	Japanese brome					2	1	0	0
615L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
615L	<i>Verbascum thapsus</i>	common mullein	1	0	X	X				
615R	No Plant	no plant	0	0	0	0				
615R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
615R	<i>Verbascum thapsus</i>	common mullein					1	0	1	1
616L	No Plant	no plant	0	0	X	X				
616L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	2	0
616L	<i>Verbascum thapsus</i>	common mullein					1	0	1	1
616R	No Plant	no plant	0	0	0	0				
616R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
616R	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
617L	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
617L	<i>Verbascum thapsus</i>	common mullein	0	0	1	X	1	0	1	1
617R	No Plant	no plant	0	0	0	0				
617R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
617R	<i>Verbascum thapsus</i>	common mullein					1	1	1	1
618L	No Plant	no plant	0	0	0	X				
618L	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
618R	No Plant	no plant	0	0	0	0				
618R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
619L	No Plant	no plant	0	0	0	X				
619L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
619L	<i>Verbascum thapsus</i>	common mullein					2	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

Table 7. Comparison of 2011 vs. 2014 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2011				2014			
			D1	D2	D3	D4	D1	D2	D3	D4
619R	<i>No Plant</i>	no plant	0	0	0	0				
619R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
620L	<i>Bromus tectorum</i>	cheatgrass	1	0	0	0				
620L	<i>Salsola tragus</i>	prickly Russian thistle	2	1	0	0	2	2	2	2
620R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	2	0	0
620R	<i>Verbascum thapsus</i>	common mullein					1	0	1	0
621L	<i>Bromus tectorum</i>	cheatgrass	1	0	0	0				
621L	<i>Chenopodium album</i>	common lambsquarters	1	0	0	0				
621L	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	2	0	0
621R	<i>Bromus japonicus</i>	Japanese brome					0	1	0	0
621R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	3	2	3	3
622L	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	2	2	2
622L	<i>Tragopogon dubius</i>	western salsify					1	0	0	0
622R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	3	2	3	3
623L	<i>Bromus japonicus</i>	Japanese brome					1	1	0	0
623L	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	3	2	3	3
623L	<i>Tragopogon dubius</i>	western salsify					0	1	0	0
623R	<i>Bromus tectorum</i>	cheatgrass					0	1	0	0
623R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	2	2	2
700L	<i>Bromus japonicus</i>	Japanese brome					1	2	0	0
700L	<i>Marrubium vulgare</i>	horehound					0	2	0	0
700L	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	2	2	2	2
700R	<i>Bromus japonicus</i>	Japanese brome					2	2	0	0
700R	<i>Marrubium vulgare</i>	horehound					0	0	2	0
700R	<i>Salsola tragus</i>	prickly Russian thistle	2	2	2	0	2	2	2	2
700R	<i>Verbascum thapsus</i>	common mullein	0	0	1	0	0	0	1	0
701L	<i>Salsola tragus</i>	prickly Russian thistle	0	2	0	0	2	0	2	2
701R	<i>Bromus inermis</i>	smooth brome	0	0	0	2				
701R	<i>Bromus tectorum</i>	cheatgrass	0	0	2	2				
701R	<i>Salsola tragus</i>	prickly Russian thistle	0	2	2	0	2	0	2	2
702L	<i>Salsola tragus</i>	prickly Russian thistle	0	1	0	0	0	2	0	2
702R	<i>No Plant</i>	no plant	0	0	0	0				
702R	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	2
702R	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
703L	<i>Bromus japonicus</i>	Japanese brome					2	2	0	0
703L	<i>Salsola tragus</i>	prickly Russian thistle	1	1	0	0	2	2	0	0
703L	<i>Verbascum thapsus</i>	common mullein					1	1	0	0
703R	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	2	0	0
703R	<i>Verbascum thapsus</i>	common mullein	0	1	0	0				
704L	<i>Salsola tragus</i>	prickly Russian thistle	1	2	0	0	2	2	0	0
704R	<i>No Plant</i>	no plant	0	0	0	0				
704R	<i>Salsola tragus</i>	prickly Russian thistle					0	2	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 2011 vs. 2014 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2011				2014			
			D1	D2	D3	D4	D1	D2	D3	D4
705L	No Plant	no plant	0	0	0	0				
705L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
705L	<i>Verbascum thapsus</i>	common mullein					1	0	1	0
705R	No Plant	no plant	0	0	0	0				
705R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
705R	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
706L	No Plant	no plant	0	0	0	0				
706L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	2	0
706R	No Plant	no plant	0	0	0	0				
706R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
707L	No Plant	no plant	0	0	0	0				
707L	<i>Salsola tragus</i>	prickly Russian thistle					0	1	0	0
707R	<i>Salsola tragus</i>	prickly Russian thistle					0	1	0	0
707R	<i>Verbascum thapsus</i>	common mullein	0	1	0	0				
708L	No Plant	no plant	0	0	0	0	0	0	0	0
708R	No Plant	no plant	0	0	0	0	0	0	0	0
709L	No Plant	no plant	0	0	0	0				
709L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
709R	<i>Bromus inermis</i>	smooth brome					1	1	1	0
709R	No Plant	no plant	0	0	0	0				
709R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	2	0
709R	<i>Tragopogon dubius</i>	western salsify					0	1	0	0
709R	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
710L	<i>Bromus inermis</i>	smooth brome					1	1	0	0
710L	No Plant	no plant	0	0	0	0				
710L	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
710R	<i>Bromus japonicus</i>	Japanese brome					0	2	0	0
710R	No Plant	no plant	0	0	X	X				
710R	<i>Verbascum thapsus</i>	common mullein					1	0	1	0
711L	No Plant	no plant	0	0	0	0				
711L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	2	0
711L	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
711R	No Plant	no plant	0	0	X	X				
711R	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
711R	<i>Verbascum thapsus</i>	common mullein					0	1	0	0
712L	No Plant	no plant	0	0	0	0				
712L	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
712R	No Plant	no plant	0	0	0	0				
712R	<i>Salsola tragus</i>	prickly Russian thistle					0	2	0	0
713L	No Plant	no plant	0	0	0	0				
713L	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
713R	No Plant	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 2011 vs. 2014 detections for each individual Vector Block, detailing the given Density Code for each Distance Class (continued).

Block	Scientific Name	Common Name	2011				2014			
			D1	D2	D3	D4	D1	D2	D3	D4
713R	<i>Salsola tragus</i>	prickly Russian thistle					2	2	0	0
714L	<i>Salsola tragus</i>	prickly Russian thistle	2	2	0	0	2	2	2	2
714R	<i>Marrubium vulgare</i>	horehound	0	1	0	0				
714R	<i>Salsola tragus</i>	prickly Russian thistle	1	0	0	0	2	2	0	0
715L	<i>Bromus japonicus</i>	Japanese brome					2	1	0	0
715L	<i>Salsola tragus</i>	prickly Russian thistle	2	1	0	0	2	2	2	2
715R	<i>Salsola tragus</i>	prickly Russian thistle	2	0	0	0	2	2	0	0
715R	<i>Verbascum thapsus</i>	common mullein	0	1	0	0	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

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