



Capulin Volcano National Monument

2010 Exotic Plant Monitoring

Exotic plants represent one of the most significant threats to natural resources in national parks due to their abilities to reproduce prolifically, rapidly colonize new areas, displace native species, alter ecosystem processes across multiple scales, and detract from the interpretive value of park resources. In the Great Plains, grasslands have been increasingly degraded and fragmented, which results in increasing chances of exotic plant species invasions. Prevention and early detection are the principal strategies for successful invasive exotic plant management.

Invasive exotic plant monitoring was recognized across all Southern Plains Inventory & Monitoring Network (SOPN) parks as the most important shared monitoring need. The objectives of monitoring high-priority exotics in areas of high and low invasion probability are to: (1) detect exotic species introductions early, (2) determine changes in the status and trend (density, abundance, or extent), and (3) determine changes in species composition.

Methods

Overall sampling at Capulin Volcano National Monument (NM) occurs on paved and unpaved roads and trails over its full three-year rotation. In 2010, exotic plant monitoring occurred for two days in July. The vectors sampled were the paved entrance road to the visitor center and paved trails at the top of the volcano leading both into the crater and around the rim. Fifty-four vector blocks were monitored, for a total of 1.35 linear kilometers sampled on both sides (Figure 1). In addition, six permanent transects within the landscape were sampled for a total of 30 4x1 meter plots.

Results

Cheatgrass (*Bromus tectorum*) was the most commonly found exotic species this field season (Table 1), followed by Japanese brome (*Bromus japonicus*). Cheatgrass was found in 54% of vector blocks sampled, primarily in scattered patches up to 12 meters into the landscape, but at times over 20 meters deep. Cheatgrass was found along all vectors sampled. Japanese brome was found in 46% of vector blocks sampled, generally in scattered patches within 20 meters into the landscape.

Western salsify (*Tragopogon dubius*) was present in 39% of vector blocks sampled and 67% of secondary transects. Mullein (*Verbascum thapsus*) was present in 30% of vector

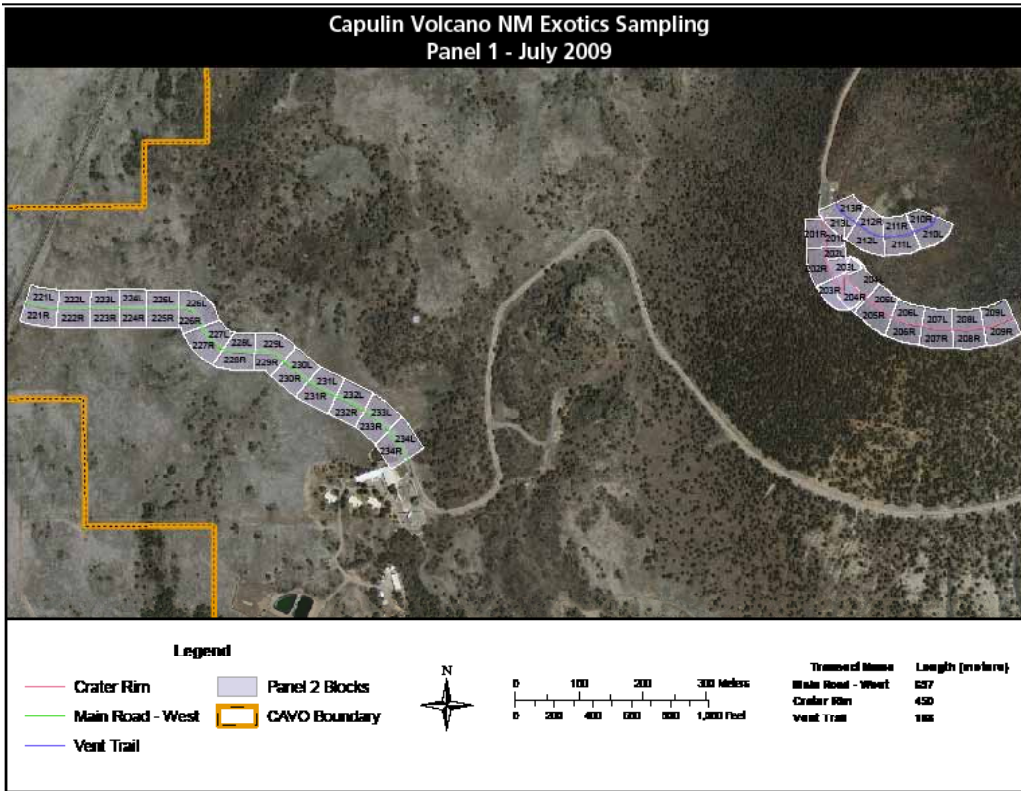


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Cheatgrass (*Bromus tectorum*) was the most commonly found exotic species in 2010 at Capulin Volcano NM.

blocks sampled and 33% of secondary transects as a few plants to occasional scattered patches within the first 12 meters of the vector primarily along the rim trail. Smooth brome (*Bromus inermis*) was present in 28% of vector blocks sampled, generally as scattered patches up to 12 meters from the vector and primarily on the trails at the top of the cone.

Green bristlegrass (*Setaria viridis*) was present in 28% of vector blocks sampled as individual plants to scattered patches only along the entrance road and primarily in the mowed zone. Horehound (*Marrubium vulgare*) was found in 26% of vector blocks sampled and 17% of secondary transects.



Flixweed (*Descurainia sophia*) was found in 24% of vector blocks sampled as individual plants up to 10 meters into the landscape along the trails. Crested wheatgrass (*Agropyron cristatum*) was found in 19% of vector blocks sampled in scattered patches up to 10 meters into the landscape along the trails. Black medic clover (*Medicago lupulina*) was found in 17% of vector blocks sampled as scattered patches generally within the first 10 meters of the vector on both the crater trail and the entrance road.

Figure 1. Individual vector blocks sampled, Capulin Volcano NM, 2010.

Table 1. Number and percentage of primary and secondary sample units where each species was detected, Capulin Volcano NM, 2010.

Scientific name	Common name	Primary vector blocks (n=54)		Secondary transects (n=6)	
		Total	% blocks	Total	% transects
<i>Bromus tectorum</i>	Cheatgrass	29	54	0	0
<i>Bromus japonicus</i>	Japanese brome	25	46	0	0
<i>Tragopogon dubius</i>	Western salsify	21	39	4	67
<i>Verbascum thapsus</i>	Mullein	16	30	2	33
<i>Bromus inermis</i>	Smooth brome	15	28	0	0
<i>Setaria viridis</i>	Green bristlegrass	15	28	0	0
<i>Marrubium vulgare</i>	Horehound	14	26	1	17
<i>Descurainia sophia</i>	Flixweed	13	24	0	0
<i>Agropyron cristatum</i>	Crested wheatgrass	10	19	0	0
<i>Medicago lupulina</i>	Black medic clover	9	17	0	0
<i>Euphorbia davidii</i>	Dauids spurge	4	7	2	33
<i>Salsola tragus</i>	Prickly Russian thistle	4	7	3	50
<i>Melilotus officinalis</i>	Yellow sweetclover	2	4	0	0
<i>Chenopodium album</i>	Common lambsquarters	1	2	0	0
<i>Convolvulus arvensis</i>	Field bindweed	1	2	0	0
<i>Kochia scoparia</i>	Kochia	1	2	0	0
<i>Melilotus alba</i>	White sweetclover	0	0	1	17
<i>Lactuca serriola</i>	Prickly lettuce	0	0	5	83