Exotic Plants

2009

RESOURCE BRIEF

Importance

Invasive exotic plants have been consistently ranked as a top vital sign for long term monitoring as part of the NPS Inventory & Monitoring (I&M) Program. During final selection of SOPN vital signs in 2006, invasive exotic plant monitoring was recognized across all network parks as the most important shared monitoring need. Early detection is a key strategy for successful invasive exotic plant management. Therefore, the SOPN has incorporated the following objectives into its monitoring plan for Exotic Plants: (1) to detect the initial occurrence for any of a subset of high priority species in areas of high and low invasion probability, (2) to determine changes in the status and trend (density, abundance or extent) of a subset of high priority species in areas of high and low invasion probability, and (3) to determine changes in species composition of a subset of high priority species in areas of high and low invasion probability, taking into account any management treatments that occurred between sampling intervals. Following is an overview of results for the 2009 pilot monitoring season.

PHOTO CREDIT: L. L. BERRY

mullien (*Verbascum thapsus*)

Table 1. The number and percentage of primary (N=52) and secondary (N=2) sample units that each species was detected at Capulin Volcano N.M. in 2009.

		Primary Sample Units		Secondary Sample Units	
Scientific Name	Common Name	No. Primary Vector Blocks	% Blocks Sampled (N=52)	No. Secondary Transects[1]	% Transects Sampled (N=12)
Verbascum thapsus	mullien	52	100	1	50
Bromus species	brome species	47	90	2	100
Chenopodium album	common lambsquarters	20	38	1	50
Marrubium vulgare	horehound	19	36	0	0
Descurainia sophia	flixweed; herb sophia	19	36	2	100
Tragopogon dubius	western salsify	16	31	0	0
Melilotus officinalis	yellow sweet clover	9	17	0	0
Kochia scoparia	kochia	4	8	0	0
Cynoglossum officinale	houndstongue	3	6	0	0
Salsola tragus	prickly Russian thistle	3	6	0	0
Taraxacum officinale	dandelion	2	4	0	0
Polygonum convolvulus	climbing bindweed	2	4	0	0
Convolvulus arvensis	field bindweed	1	2	0	0
Lactuca serriola	prickly lettuce	1	2	1	50
Setaria viridis	green bristlegrass	1	2	0	0
Sonchus asper	spiny sowthistle	1	2	0	0

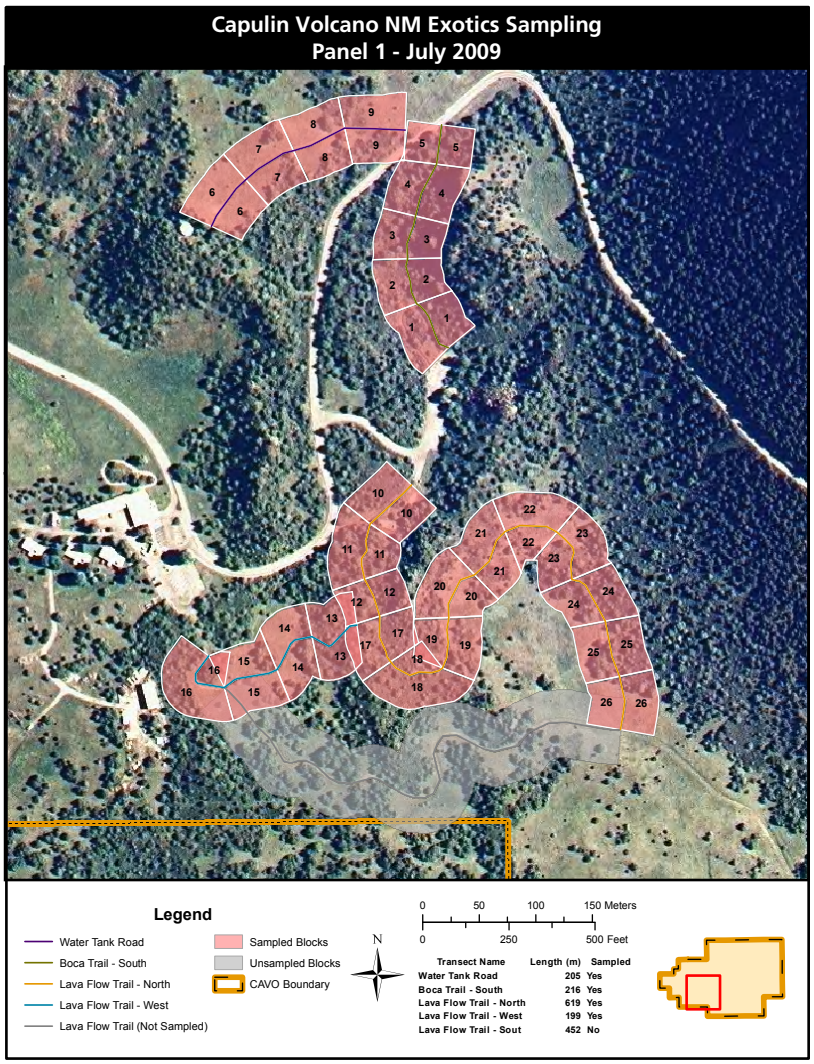

Figure 1. The 2009 panel (annual sample) at Capulin Volcano N.M. showing the individual vector blocks sampled.

2009 Sampling

During 2009, exotic plant monitoring occurred at CAVO for two days in late August. Vectors sampled were all unpaved trails, with one 4-block section that doubled as maintenance road (Fig. 1). These trails included the entire stretch of the Nature Trail, The Boca Trail leading from the parking area to the water plant, and all but the bottom loop of the Lava Trail. Rains prevented the completion of the Lava Trail but this area will be included in the panel beginning in 2012. Twenty-six vector blocks were monitored for a total of 1,300 linear meters. Additionally, two permanent transects were sampled within the landscape for a total of ten 1m2 plots.

Two exotic plant species were found in every block sampled: mullein (Verbascum thapsus) and an unidentified species of brome (Bromus species)(Table 1). A sample of the brome was taken for identification purposes since, of the four brome species found in the park, only Japanese brome (Bromus japonicus) is considered exotic. Brome was also observed in 20% of the secondary plots (Fig. B3). Active control of mullein is underway at the park and was evident during our survey, although many of the plants observed were actively growing. It should be noted mullein was present in only one grassland plot on one transect.

Horehound (*Marrubium vulgare*), common lambsquarters (*Chenopodium album*), Herb Sophia (*Descurainia sophia*) and western salsify (Tragopogon dubius) were all found in roughly half the vector blocks sampled. Both common lambsquarters and western salsify were found throughout the areas in scattered patches up to 12 meters into the landscape. Lambsquarters was found in only one plot on one transect during grassland monitoring. Herb Sophia and horehound were prevalent along the Boca Trail from the road crossing to the water plant, but found scattered in other areas. Horehound was seen up to 30 meters into the landscape and in some places had reached an even distribution. Herb Sophia was found in scattered patches generally within the first 10 meters into the landscape and observed in one plot on each of the two transects. Yellow sweetclover (*Melilotus officinalis*) was spotted in scattered clumps primarily on the Lava Trail within the first 10 meters, but one block found it moving well into the landscape.

Over half of the exotic species observed at CAVO were found in limited populations and should be considered for control before they spread. One section of trail of particular concern is the area from the parking lot to the road along the Boca Trail (vector blocks 1-5). This area has been heavily disturbed and there are beginning/remnant infestations of several quickly spreading exotics in this area: houndstongue (*Cynoglossum officinale*), kochia (*Kochia scoparia*), dandelion (*Taraxacum officinale*), field bindweed (*Convolvulus arvensis*), climbing bindweed (*Polygonum convolvulus*), prickly Russian thistle (*Salsola tragus*), green bristlegrass (*Setaria viridus*) and spiny sowthistle (*Sonchus asper*). Houndstongue was observed deep into the landscape in scattered patches, while dandelion, climbing bindweed and spiny sowthistle were found closer to the trail in limited numbers. Kochia, field bindweed and green bristlegrass were found closer to the parking area and kochia was evenly distributed in this area. Yellow sweetclover (*Melilotus officinalis*), prickly lettuce (*Lactuca serriola*) and prickly Russian thistle were found primarily along the Lava Trail and seemed to be initially associated with burn scars from earlier prescribed burns. There was also a stand of kochia observed along the Nature Tail. Prickly lettuce was also observed in one plot on one transect in the interior landscape.