

Exotic Plants

2009

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.

RESOURCE BRIEF



prickly Russian thistle (*Salsola tragus*)

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2009 Sampling

In 2009, exotic plant monitoring occurred at SAND for two

Table 1. The number and percentage of primary (N=52) and secondary (N=13) sample units that each species was detected at Sand Creek Massacre NHS 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=13)
<i>Salsola tragus</i>	prickly Russian thistle	50	96	13	100
<i>Chenopodium album</i>	common lambsquarters	34	65	6	46
<i>Tragopogon dubius</i>	western salsify	10	19	0	0
<i>Buglossoides arvensis</i>	corn gromwell	8	15	0	0
<i>Setaria viridis</i>	green bristlegrass	8	15	0	0
<i>Kochia scoparia</i>	kochia	6	12	11	85
<i>Bromus arvensis</i>	field brome	2	4	0	0
<i>Bromus tectorum</i>	cheatgrass	1	2	0	0
<i>Poa pratensis</i>	Kentucky bluegrass	1	2	0	0
<i>Cirsium arvense</i>	Canada thistle	0	0	1	8
<i>Convolvulus arvensis</i>	field bindweed	0	0	2	15
<i>Taraxacum officinalis</i>	dandelion	0	0	2	15
<i>Descurainia sophia</i>	herb Sophia	0	0	1	8
<i>Melilotus officinalis</i>	yellow sweetclover	0	0	1	8
<i>Brassicaceae species</i>	mustard species	0	0	2	15





Figure 1. The 2009 panel (annual sample) at Sand Creek Massacre NHS showing the individual vector blocks sampled.

days in late July. The vectors sampled were the dirt access road to the overlook and the dirt entrance road (Fig. 1). Fifty-two vector blocks were monitored for a total of 1,300 linear meters sampled on both sides. Monitoring effort was hampered by extreme heat, resulting in less distance covered than anticipated. This area is slated for monitoring again in 2012. Secondary exotic monitoring of the landscape interior took place on 13 permanent transects for a total of 65 1m² plots (Table 1).

Prickly Russian thistle (*Salsola tragus*) was listed as the most prevalent exotic encountered, present in almost all vector blocks monitored up to 10 meters into the landscape in scattered patches and even distributions. Due to the nature of the monitoring, it is possible that prickly Russian thistle was confused with a similar exotic, kochia (*Kochia scoparia*), subsequently increasing the amount of kochia encountered and lessening the amount of prickly Russian thistle. These two exotics appear to fill the same niche and are generally found growing together throughout the SOPN parks. Either exotic provides

the same challenge to management and steps will be taken in the future to provide better identification. Prickly Russian thistle was observed within the landscape in only 21 of the 65 secondary plots, but these plots existed on every transect sampled. Kochia was as ubiquitous within the landscape, being observed in more plots (31) but only 85% of the transects. Common lambsquarters (*Chenopodium album*) was also prevalent in scattered patches from the edge of the vector up to 20 meters in the landscape and was observed in 12 interior plots on 46% of the transects.

Western salsify (*Tragopogon dubius*), corn gromwell (*Buglossoides arvensis*), green bristlegrass (*Setaria viridis*) and kochia (*Kochia scoparia*) were encountered in up to 20% of the vector blocks monitored. Western salsify was most often found 2 – 10 meters into the landscape in scattered patches, and as occasional plants at the edge of the vector and from 10 – 20 meters into the landscape. Corn gromwell was seen up to 10 meters into the landscape as occasional plants and when these isolated plants were encountered they were eradicated to prevent further spread. Green bristlegrass was found in scattered patches along the edge of the main entrance road. These small populations should be quickly controlled to prevent further invasion, as this species exhibits a strong ability to spread along maintained roadsides, responding well to mowing. Kochia was seen in scattered patches to even distributions up to 20 meters into the landscape.

Occasional plants of field brome (*Bromus arvensis*) were discovered in two vector blocks located at the site of an old corral and a few plants of cheatgrass (*Bromus tectorum*) were seen near the main entrance. These few plants were pulled before they could release their seed to prevent further spread. A few plants of Kentucky bluegrass (*Poa pratensis*) were seen in the area of the old corral and could be eradicated.

Several exotic plant species were found within the landscape during secondary monitoring that were not observed along the sampled vector. Field bindweed (*Convolvulus arvensis*) found in seven plots on two transects. Herb Sophia (*Descurainia sophia*) was observed on all five plots on only one transect. Yellow sweetclover (*Melilotus officinalis*) inhabited three plots of one transect, while both dandelion (*Taraxacum officinalis*) and the dried remains of an unidentified mustard species occupied only two plots each of two transects. Canada thistle (*Cirsium arvense*) was found in only one plot on one transect.