

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.



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Japanese brome (*Bromus japonicus*)

2009 Sampling

In 2009, exotic plant monitoring occurred at WABA for two days in late June. Vectors sampled included the unpaved loop trails (Fig. 1). Fifty-six vector blocks were monitored for a total linear effort of 1,400 meters sampled on both sides. Moni-

Table 1. The number and percentage of primary (N=56) and secondary (N=13) sample units that each species was detected at Washita Battlefield NHS in 2009.

Scientific Name	Common Name	Primary Sample Units		Secondary Sample Units	
		No. Primary Vector Blocks	% Blocks Sampled (N=56)	No. Secondary Transects ¹	% Transects Sampled (N=13)
<i>Bromus japonicus</i>	Japanese brome	46	82	6	46
<i>Sorghum halepense</i>	Johnsongrass	28	50	4	31
<i>Tragopogon dubius</i>	western salsify	24	43	0	0
<i>Sonchus asper</i>	spiny sowthistle	23	41	0	0
<i>Ulmus pumila</i>	Siberian elm	10	18	3	23
<i>Melilotus alba</i>	white sweetclover	9	16	1	8
<i>Kochia scoparia</i>	kochia	7	13	8	62
<i>Bothriochloa ischaemum</i>	KR Bluestem	6	11	0	0
<i>Salsola tragus</i>	prickly Russian thistle	5	9	1	8
<i>Rumex crispus</i>	curly dock	3	5	0	0
<i>Convolvulus arvensis</i>	field bindweed	1	2	1	8
<i>Eupatorium dentata</i>	toothed spurge	1	2	0	0
<i>Melilotus officinalis</i>	yellow sweetclover	1	2	4	31
<i>Tamarix ramosissima</i>	saltcedar	1	2	0	0



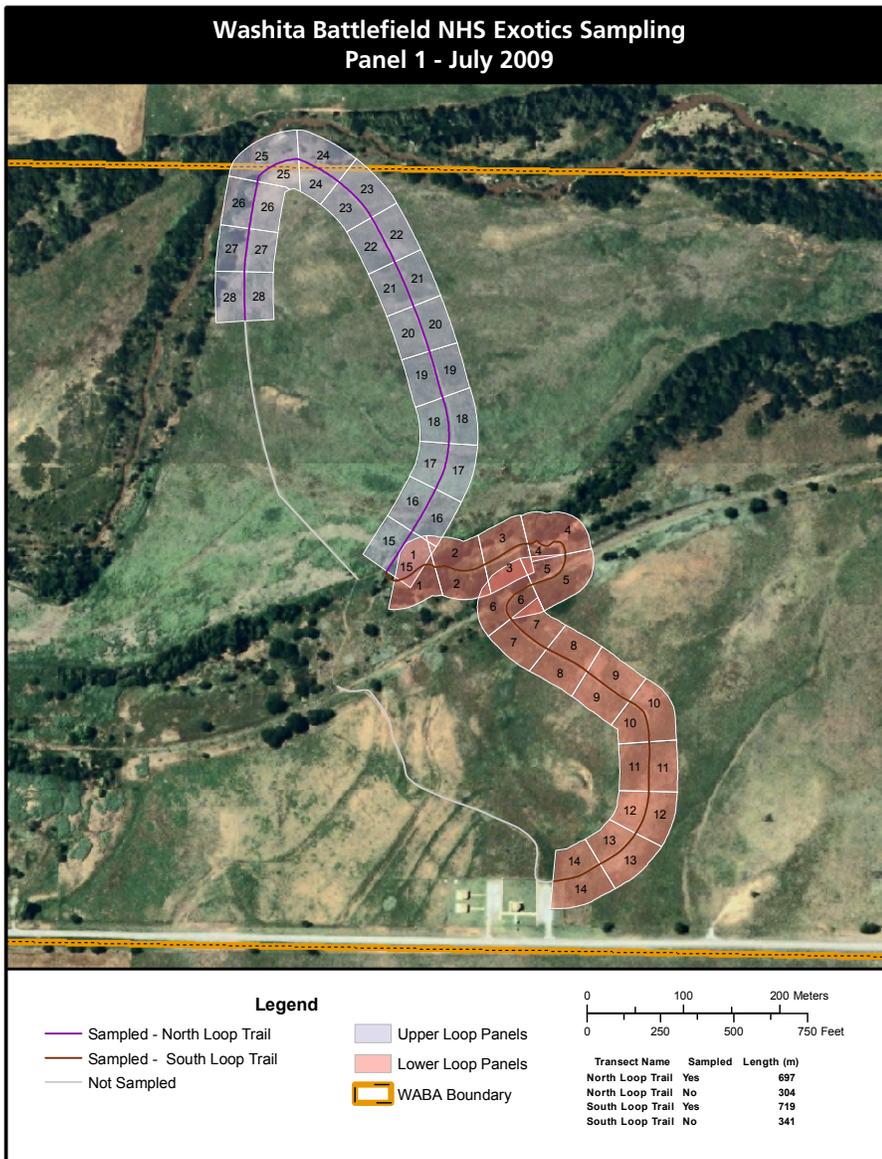


Figure 1. The 2009 panel (annual sample) at Washita Battlefield NHS showing the individual vector blocks sampled.

toring effort was curtailed due to extreme heat, preventing the completion of the lower loop trail. This section will be included in the next monitoring of the trail scheduled for 2012. Additionally, secondary monitoring within the landscape took place on 13 permanent transects for a total of 65 1m² plots.

Japanese brome (*Bromus japonicus*) was the most prevalent exotic observed, occurring in 82% of the vector blocks sampled (Table 1). This grass was ubiquitous, occurring from the vector edge deep into the landscape in scattered patches to even distributions. Japanese brome was present in 23 interior plots on 46% of the transects. Johnsongrass (*Sorghum halepense*) was also frequently present in scattered patches throughout the landscape, being found in 5 plots on 31% of the transects. Western salsify (*Tragopogon dubius*) was seen up to 20 meters into the landscape in scattered patches. Spiny sowthistle (*Sonchus asper*) was almost as prevalent as western

salsify, but only observed up to 10 meters into the landscape in similarly scattered patches.

White sweetclover (*Melilotus alba*) was found in 16% of the vector blocks monitored, but only near the vector edge as occasional plants; only one vector block contained scattered patches. It was also observed in one plot on one transect. Siberian elm (*Ulmus pumila*) was spotted as short dense sprouts either as occasional plants or in scattered patches up to 10 meters into the landscape, but not in the mowed verges. The diminutive nature of the Siberian elm at this stage of growth made it easy for them to hide among the tall grass, so a more thorough search is recommended. Siberian elm was found in eight interior plots on 23% of the transects. KR bluestem (*Bothriochloa ischaemum*) is a particularly invasive grass and was found in a series of six vector blocks along the lower loop, up to 20 meters into the landscape. It is also known to occur in other areas of the park. Kochia (*Kochia scoparia*) was also observed in a series of seven blocks in scattered patches up to 20 meters into the landscape. It was present in 28 interior plots on 62% of the transects. Prickly Russian thistle (*Salsola tragus*) was found as occasional plants up to 10 meters into the landscape, although one vector block did have growing densities to scattered patches. It was also observed in one interior plot on one transect.

A number of exotic plants have been observed in small numbers and limited areas and are prime candidates for early eradication to prevent future problems. Curly dock (*Rumex crispus*) was found in scattered patches up to 10 meters into the landscape, with one vector block exhibiting an even distribution. Field bindweed (*Convolvulus arvensis*) was seen as an occasional plant in one vector block, running up to 10 meters into the landscape. It was also found in three interior plots on only one transect. An occasional plant of toothed spurge (*Euphorbia dentata*) along the edge of the vector can be quickly eradicated. Yellow sweetclover (*Melilotus officinalis*) was observed 2 – 10 meters into the landscape as an occasional plant. It was also found in ten interior plots on 31% of the transects. One large plant of saltcedar (*Tamarix ramosissima*) was seen at the bottom of the loop trail on the banks of the Washita River. Previous eradication efforts at WABA appear to have been effective but reconnaissance along the riparian area for re-sprouts and new introductions should be implemented soon to prevent reoccurrence of this undesirable.