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Invasive Exotic Plant Monitoring in Black Canyon of the Gunnison National Park and Curecanti National Recreation Area, 2003–2015

Natural Resource Report NPS/NCPN/NRR—2016/1315



ON THE COVER

Canada thistle (*Breea arvensis*). Photo by Leslie J. Mehrhoff, University of Connecticut, Bugwood.org.

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Natural Resource Report NPS/NCPN/NRR—2016/1315

Prepared by
Dustin Perkins
Aneth Wight
Northern Colorado Plateau Network
National Park Service
P.O. Box 848
Moab, UT 84532

Editing and Design
Alice Wondrak Biel
Northern Colorado Plateau Network
National Park Service
P.O. Box 848
Moab, UT 84532

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Executive Summary

Invasive exotic plant (IEP) species are a significant threat to natural ecosystem integrity and biodiversity, and controlling them is a high priority for the National Park Service. The Northern Colorado Plateau Network (NCPN) selected the early detection of IEPs as one of 11 monitoring protocols to be implemented as part of its long-term monitoring program. This report documents and maps invasive plant patches detected at Black Canyon of the Gunnison National Park (NP) and Curecanti National Recreation Area (NRA) during 2014–2015. It also summarizes all work completed at the parks from 2010 to 2015 (representing two full rotations of desired monitoring routes) and presents data collected by Utah State University in 2003 and 2004.

From 2014 to 2015, a total of 280 kilometers were monitored at Black Canyon of the Gunnison NP and Curecanti NRA. A total of 3,788 patches of 19 priority IEP species were detected on monitoring routes and transects in 2014–2015. Canada thistle (*Breea arvensis*), common mullein (*Verbascum thapsus*), yellow sweetclover (*Melilotus officinale*), musk thistle (*Carduus nutans*), reed canarygrass (*Phalaroides arundinacea*), and Russian thistle (*Salsola* sp.) were the most commonly detected priority IEPs over both parks. In Black Canyon of the Gunnison NP, the most commonly detected species were yellow sweetclover, musk thistle, common mullein, reed canarygrass, and Canada thistle.

Red Rock Canyon, the Gunnison River, shoreline of Blue Mesa Reservoir, and the Black Canyon Road had the most invasive plants per kilometer. The highest percent cover of total invasive species in 2014–2015 was 18.3%, in the Cooper/Neversink area. Other high percent covers occurred along the Red Rock Canyon (8.8%), Gunnison River (7.1%), Northern Roads (2.9%), and Southern Roads (1.2%) monitoring routes. Total invasive plant cover was <1.0% in other areas in 2015.

Patches of common burdock (*Arctium minus*), musk thistle, and Canada thistle all declined in Red Rock Canyon compared to the two earlier time periods and common mullein has remained low, which has resulted in an overall decrease in the number of patches. Along the Gunnison River, common burdock, Canada thistle, reed canarygrass, and common mullein all declined from the earlier sampling periods. Along the East Portal Road, Canada thistle and musk thistle have declined, resulting in an overall decrease in the number of IEP patches. The number of IEP patches increased dramatically along the shores of Blue Mesa. Canada thistle, perennial pepperweed (*Cardaria latifolia*), musk thistle, bull thistle (*Cirsium vulgare*), scentless chamomile (*Matricaria perforata*), reed canarygrass, Russian thistle, and common mullein all had large increases. In the Elk Creek Management Area, overall patch numbers went down, with the largest decreases seen in kochia (*Bassia sieversiana*) and Russian thistle, while Canada thistle increased. Network staff will return to Black Canyon of the Gunnison NP and Curecanti NRA in 2017 to begin the third rotation of monitoring.

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1 Introduction

Invasive exotic species fragment native ecosystems, displace native plants and animals, and alter ecosystem function. Invasive species are second only to habitat loss as threats to global biodiversity (Scott and Wilcove 1998) and represent one of the most serious threats to natural ecosystem integrity (NRC 2002). Biological invasions are occurring at accelerated rates in nearly every major ecosystem (Mooney and Hobbs 2000). Exotic plants negatively affect park resources and visitor enjoyment by altering landscapes and fire regimes, reducing native plant communities and animal habitat, and increasing trail maintenance needs. Recognizing these challenges, Northern Colorado Plateau Network (NCPN) parks identified invasive exotic plants (IEPs) as a high-priority vital sign for long-term monitoring (O'Dell et al. 2005).

IEPs are a subset of exotic plants "whose introduction does or is likely to cause economic or environmental harm or harm to human health" (Executive Order 13112). With the aim of facilitating strategic control approaches, this monitoring program detects early invasions, identifies existing invasions, and, to the extent possible, tracks changes in the abundance and distribution of priority IEPs in parks along key invasive pathways.

Invasive exotic plants can spread into national parks via a number of different pathway types. Predictable IEP pathways include roads, trails, and riparian corridors. Long-distance dispersal through cargo containers and air freight are examples of sudden pathways. Anthropogenic pathways include horticultural escapes and seeds transported on shoes and in restoration seed mixes. For the National Park Service (NPS), the consequences of these plant invasions present a significant challenge to the agency's ability to maintain natural resources "unimpaired for the enjoyment of future generations."

Because regular, comprehensive monitoring of the distribution and abundance of all exotic plant species within NCPN park units is beyond the fiscal capabilities of the network and parks, the NCPN is focusing on the most likely areas where a broad range of invasive exotic plants may occur: riparian corridors, roads, trails, areas of high visitor impact (e.g., campgrounds), and park boundaries. This approach is cost-effective for finding many new invasions in areas where they are most likely to occur, but may miss exotic plants dispersed to the interior areas of large parks by wind and/or animals.

Specific objectives of NCPN invasive exotic plant monitoring are:

1. To detect incipient populations and new introductions of invasive plant species before they become established in areas of management significance and invasion pathways; and
2. To determine status and trends of selected invasive plant populations of management significance.

This report summarizes the 2015 field season at Black Canyon of the Gunnison National Park (NP) and Curecanti National Recreation Area (NRA), as well as summarizing invasive plant monitoring conducted by Utah State University and the NCPN from 2003 to 2015.

2 Methods

We followed the invasive exotic plant monitoring protocol developed by the NCPN (Perkins et al. 2013). The protocol emphasizes the quick collection of IEP location and abundance data in order to maximize the amount of area searched, thus increasing our chances of finding a higher percentage of both new invasions and established IEPs. By focusing on roads, trails, and waterways, which are major vectors for invasive plants, we will capture the greatest amount of information (i.e., benefit) with the least amount of time and effort (i.e., cost).

2.1 Developing a park priority invasive exotic plant list

Prior to beginning monitoring in 2015, staff from the NCPN, Black Canyon of the Gunnison NP, and Curecanti NRA reviewed the park's list of priority IEPs (Table 2-1), initially created in 2010. The original list was developed by reviewing past park literature, state and county weed lists, and consulting with park staff and county weed managers. Our priority IEP list includes existing IEPs and potential IEPs of high management concern. Because these methods are designed to be rapid, field crews are trained to develop a focused search image of the target plants, instead of looking for every possible invasive plant species. The likelihood of eradicating these target species, or containing them within a park, is generally high. The list of priority species is reviewed before each field season, with a few minor changes from year to year.

2.2 Monitoring routes

2.2.1 Minimum detection target size

The minimum detection target size (MDTS) represents the patch size that is large enough to be detected with a high level of confidence (typically at least 90% of the total number of patches of that size and larger in the monitoring area) under actual field conditions, but small enough that any missed patches smaller than the MDTS could still feasibly be eradicated if not found until the next scheduled monitoring visit. We established an MDTS of 40 m^2 (0.01 acres, or approximately 20 × 20 ft) for all IEPs. Use of the MDTS was necessary because field technicians are not expected to find every single plant of every targeted

Table 2-1. Priority invasive plant list, Black Canyon of the Gunnison NP and Curecanti NRA, 2010–2015.

Scientific name	Common name
Acosta diffusa	diffuse knapweed
Acosta maculosa	spotted knapweed
Acroptilon repens	Russian knapweed
Anisantha tectorum[1]	cheatgrass
Arctium minus	common burdock
Artemisia absinthium	absinth wormwood
Bassia sieversiana	kochia
Breea arvensis	Canada thistle
Cardaria sp.	hoary cress, whitetop
Cardaria latifolia	perennial pepperweed
Carduus nutans	musk thistle
Cirsium vulgare	bull thistle
Clematis orientalis[2]	Chinese clematis
Convolvulus arvensis[2]	field bindweed
Cyclachaena xanthifolia	marsh elder
Cynoglossum officinale	houndstongue
Elaeagnus angustifolia	Russian olive
Euphorbia esula	leafy spurge
Hesperis matronalis	Dame's rocket
Hyoscyamus niger	black henbane
Leucanthemum vulgare	oxeye daisy
Linaria genistifolia	Dalmatian toadflax
Linaria vulgaris	yellow toadflax
Matricaria perforata	scentless chamomile
Melilotus officinale[3]	yellow sweetclover
Onopordum acanthium	Scotch thistle
Phalaris arundinacea	reed canarygrass
Potentilla recta[4]	sulfur cinquefoil
Rubus armeniacus[4]	Himalayan blackberry
Rumex crispus[2]	curly dock
Salsola australis	Russian thistle
Tamarix spp.	tamarisk
Ulmus pumila	Siberian elm
Verbascum thapsus	common mullein

[1]Transects only at Black Canyon of the Gunnison NP (BLCA)
[2]2010 only
[3]BLCA only, transects at Curecanti NRA (CURE)
[4]2011–2015

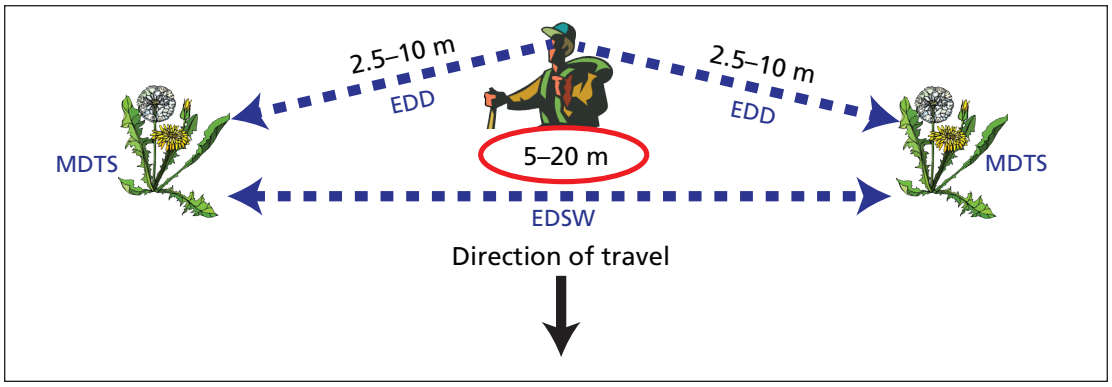


Figure 2-1. The maximum Effective Detection Distance (EDD) at Black Canyon of the Gunnison NP was 2.5 to 10 meters, making the Effective Detection Swath Width (EDSW) 5–20 meters.

IEP species during route surveys. Although searching for single mature plants of some species, such as Russian olive (*Elaeagnus angustifolia*) and tamarisk (*Tamarix* spp.), is possible due to their large size, single plants of other species, such as field bindweed (*Convolvulus arvensis*), are nearly impossible to detect in most field conditions.

2.2.2 Effective detection distance

The effective detection distance (EDD) is the maximum distance from which a searcher could consistently detect (i.e., see and recognize) the MDTS of the least-visible targeted species with at least 90% detection efficiency (Figure 2-1). Using fake plants of a targeted size, crew members are trained by walking away and determining the maximum distance from which they can consistently see and recognize the patch with complete confidence. The size of the EDD is then estimated in the field by crew members. The distance is measured either by pacing or using a laser rangefinder. The EDD for Black Canyon of the Gunnison NP in 2015 was 2.5–10 meters.

2.2.3 Effective detection swath width

Effective detection swath width (EDSW) is defined as the maximum width of a linear search swath (band transect) in which a walking observer is confident of visually detecting 90% of all target species of the MDTS (Figure 2-1). The effective detection swath width (EDSW) is equal to two times the EDD, because the surveyor is able to effectively detect IEPs for one EDD on either side of his/her search route. The EDSW was 5–20 meters at Black Canyon of the Gunnison NP in 2015.

2.2.4 Patch separation resolution

We define patch separation resolution (PSR) as the minimum distance between plants that must be considered members of separate patches. Individuals or clusters of a target species separated by the PSR distance or more are recorded as separate patches. We consider plants separated by less than the PSR to be a single patch. The PSR is set at 50 m, based on the assumption that most plants or groups of plants separated by less than 50 meters are typically considered to be one patch during planning and implementation of weed control operations. If a patch is continuous for more than 50 m, then cover estimates are made every 50 meters to aid in developing an effective management strategy for the entire patch.

2.2.5 Between feature position

Between feature positions allow electronic tracking of a user's route. A GPS unit is set to automatically generate these positions every 20 m.

2.2.6 Data collection methods

The observers walked down the center of the trail/route (see Figure 3-1), searching for IEPs by visually scanning (side-to-side) all the land within the borders of the swath. If the terrain was uneven or steep, and the observers had to glance frequently at the ground to ensure safe foot placement, then searchers stopped approximately every 5–20 meters (the length of one EDSW) and visually scanned the area in all directions. As monitoring routes were traversed, locations of all target species were

documented, using global positioning system (GPS) units with at least five-meter accuracy.

Only IEPs that were designated as priority were consistently recorded during monitoring routes. Survey crew members were given the latitude to record additional IEP species if they were noteworthy. When a priority IEP was discovered, we recorded the following information: (1) the monitoring route, (2) patch size class (see below), (3) whether the plant was pulled by the observer, (4) location, and (5) canopy cover class (see below). If several IEPs were present with similar distributions at a single point, then we recorded a point for each individual species. Patch size class was estimated as follows:

1. 1–a few plants (used for isolated single plants or very small patches (≤ 2 × 2 m),
2. few plants–40 m^2 (48 yd^2),
3. 40–400 m^2 (48–478 yd^2),
4. 400–1,000 m^2 (0.1–0.25 acre), and
5. 1,000–2,000 m^2 (0.25–0.5 acre).

We recorded canopy cover class by estimating the amount, or "percentage," of ground covered by the vertical projection of plant matter as visualized from a bird's-eye view of the vegetation (Elzinga et al. 1998). This estimate included both the living and dead standing material of the vegetation of a single plant species. Canopy cover of a patch was recorded using the following classes:

1. Trace (<1%)
2. Low (1–5%)
3. Moderate (6–25%)
4. High (26–50%)
5. Majority (51–100%).

We recorded the following ancillary information with every patch: the growth stage of exotic trees (e.g., sapling, pole, mature), evidence of prior treatment, and evidence of disturbances (e.g., recent fire, flood, small mammal disturbance).

2.3 Monitoring transects

2.3.1 Quadrat establishment

We established one transect with three vegetation quadrats every 500 meters along monitoring routes. We centered vegetation quadrats at 0.5, 5, and 10 meters away from the edge of a road on the same side as the route being walked and on alternating sides for riparian areas, small roads, or trails. A 1-m^2 sampling frame, used to sample vegetation cover and soil surface features, was placed on the right side of the transect line as the technician walked the monitoring route. In some cases, we leveled the sampling frame by propping up quadrat corners.

2.3.2 Data collection methods

In the monitoring quadrats, all priority IEP species, as well as cheatgrass (*Anisantha tectorum*) were recorded in transects. For each quadrat, we recorded percent cover of each IEP using the following classes: <1, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100%. We also recorded percent cover, to the nearest 10%, of dominant soil surface features (i.e., dead wood, dung, fungus, lichen, litter/duff, live root/bole, mineral soil/sediment, moss, biological soil crust, road, rock, standing water/flooded, stream, or trash/junk).

2.4 Analyses

We calculated the mean number of patches per 100 meters for monitoring routes. Mean percent cover and standard error estimates were generated from the monitoring transect data for each monitoring route. Due to differences in observers' knowledge, only priority species should be used when comparing results from year to year.

3 Results

3.1 Priority invasive exotic plant list

In 2015, field crews searched monitoring routes for 30 species identified as high-priority at Black Canyon of the Gunnison NP (see Table 2-1). Observers were trained to recognize priority species but given the freedom to map additional species; therefore, presence and absence data for priority species are reliable for the areas searched, but absence data for other species are suspect. We recorded a total of 20 IEP species along 116 kilometers (72 miles) of monitoring routes and transects in 2015 (Table 3-1, see Figure 2-2; tables begin on page 9, figures begin on page 17).

3.2 Monitoring routes

We surveyed most of the monitoring routes at Black Canyon of the Gunnison NP in 2015. A total of 1,497 patches of 19 different priority species were detected along the monitoring routes (Tables 3-2, 3-4; Figures 3-1 through 3-14; Appendix A). Yellow sweetclover (*Melilotus officinale*), musk thistle (*Carduus nutans*), common mullein (*Verbascum thapsus*), reed canarygrass (*Phalaroides arundinacea*), and Canada thistle (*Breea arvensis*) were the most widespread species at Black Canyon of the Gunnison NP (Table 3-2). Routes with the highest density of invasive plant patches were Gunnison River 6 (41.1/km), Red Rock Canyon (35.8), Gunnison River 1 (30.7/km), Gunnison River 5 (27.7/km), and the Black Canyon Road (26.8/km). Infestation rates were generally highest along riparian areas, followed by roads and trails (Table 3-2).

A total of 3,788 patches of 25 different IEP species were detected along monitoring routes from 2014 to 2015 (see Tables 3-2, 3-3, and 3-4; Appendix A; Perkins 2015). Canada thistle (740 patches), common mullein (724), yellow sweetclover (575 and only a priority species at Black Canyon of the Gunnison NP), musk thistle (569), reed canarygrass (372), and Russian thistle (*Salsola* sp.) (304) were the most commonly detected priority IEPs. Only six patches of two priority invasive tree species were detected: tamarisk and Siberian elm (*Ulmus pumila*). One of these trees was a seedling, four were saplings, two were seedlings, and one was a mature tree.

Infestation rates between Black Canyon of the Gunnison NP and Curecanti NRA are not directly comparable, as yellow sweetclover is a priority species at Black Canyon, but is only recorded in transects in Curecanti. Yellow sweetclover made up 38% of all detections at Black Canyon. Only priority species should be examined when comparing across areas, as these were the only species consistently recorded by all observers.

3.3 Monitoring transects

A total of nine IEP species were detected in 234 transects in 2015 (Table 3-5; Appendix B). IEPs were most prevalent along:

- Red Rock Canyon
  (found in 100% of transects, 2.0 species per plot)
- Gunnison River
  (88% of transects, 1.4 species/plot),
- Northern Roads
  (74% of transects, 0.9 species/plot), and
- Southern Roads
  (64% of transects, 0.9 species/plot).

These numbers were similar to those found in areas with the highest numbers of IEPs at Curecanti NRA in 2014. Around the Cooper/Neversink area, invasives were present in 88% of transects, with an average of 1.24 IEP species per plot (Perkins 2015). Reed canarygrass had the highest percent cover of any species in 2015, with 7.0% and 5.0% cover along the Gunnison River and Red Rock Canyon. Other IEPs with high percent covers included cheatgrass along Red Rock Canyon (3.3%) and yellow sweetclover along the Northern Roads (2.4%). Total invasive plant cover was <1.0% in other areas in 2015. The only area in Curecanti NRA where there was high percent cover was the Cooper/Neversink area, where total percent cover was 18.3%, consisting primarily of reed canarygrass and Canada thistle (Table 3-6).

3.4 Results comparison: 2003–2004, 2010–2012, and 2014–2015

3.4.1 Black Canyon of the Gunnison NP

Of the routes at Black Canyon of the Gunnison NP, 75.5 kilometers were monitored in all three sample periods. Nineteen species were on both the priority list of Dewey and Anderson (2005) and on our priority list. Of these, 12 were detected in at least one time period at Black Canyon of the Gunnison NP (Table 3-7).

In 2014–2015, patch numbers of common burdock (*Arctium minus*), musk thistle, and Canada thistle all declined in Red Rock Canyon compared to the two earlier time periods and common mullein remained low, which resulted in an overall decrease in the number of patches (Table 3-7). Marsh elder (*Cyclachaena xanthifolia*) and kochia (*Bassia sieversiana*) were detected for the first time in Red Rock Canyon in 2015.

Along the Gunnison River, common burdock, Canada thistle, reed canarygrass, and common mullein all declined from the earlier sampling periods.

Along the East Portal Road, Canada thistle and musk thistle declined, resulting in an overall decrease in the number of IEP patches. However, Russian thistle, scentless chamomile (*Matricaria perforata*), and kochia were detected for the first time along the East Portal Road.

Musk thistle increased along the Northern Roads, while Russian thistle declined, resulting in an overall small increase in invasive species there. The number of patches along the South Rim Road has stayed relatively constant over the three time periods.

Total mean percent cover increased in Red Rock Canyon and decreased along the Gunnison River in 2015 when compared to 2010–2012 (Figure 3-12). However, the standard errors overlapped, indicating that these changes were not significant.

3.4.2 Curecanti NRA

Of the routes at Curecanti NRA, there were 151.8 kilometers monitored in both 2010–2012 and 2014–2015. In addition, a total of 28 species were on the priority list in both 2010–2012 and 2014–2015. Of these, 23 were detected in at least one time period at Curecanti NRA (Table 3-8).

The number of IEP patches increased dramatically along the shores of Blue Mesa. Canada thistle, perennial pepperweed (*Cardaria latifolia*), musk thistle, bull thistle (*Cirsium vulgare*), scentless chamomile, reed canarygrass, Russian thistle, and common mullein all had large increases. Leafy spurge (*Euphorbia esula*), marsh elder, yellow toadflax (*Linaria vulgaris*), and Himalayan blackberry (*Rubus armeniacus*) were all detected for the first time in 2014. Interestingly, total percent cover declined along the shores of Blue Mesa from 2010–2012 to 2014 (Figure 3-12).

In the Elk Creek Management Area, overall patch numbers decreased. The largest decreases were seen in kochia and Russian thistle, while Canada thistle increased. However, diffuse knapweed (*Acosta diffusa*), spotted knapweed (*Acosta maculosa*), and bull thistle (*Cirsium vulgare*) were all detected for the first time in 2014 in the Elk Creek area.

Along the Cooper/Neversink and Mesa Trails, patch numbers stayed similar between the two sample periods; however, common burdock and sulfur cinquefoil (*Potentilla recta*) were detected for the first time in the Cooper/Neversink trails in 2014, while bull thistle and Russian thistle were detected for the first time along the Mesa Trails.

Patch numbers increased along the Dillon Pinnacles and Pine Creek Trails.

Table 3-1. Invasive exotic plants detected during the second NCPN monitoring rotation at Black Canyon of the Gunnison NP and Curecanti NRA, July 2, 2014–September 2, 2015.

Scientific name	Common name	Method detected		Park priority?
		Routes	Transects	
Acosta diffusa	diffuse knapweed	X		Yes
Acosta maculosa	spotted knapweed	X	X	Yes
Acroptilon repens	Russian knapweed	X		Yes
Anisantha tectorum	cheatgrass		X	Transect only
Arctium minus	common burdock	X		Yes
Artemisia absinthium	absinth wormwood	X		Yes
Bassia sieversiana	kochia	X	X	Yes
Breea arvensis	Canada thistle	X	X	Yes
Cardaria sp.	hoary cress, whitetop	X		Yes
Cardaria latifolia	perennial pepperweed	X	X	Yes
Carduus nutans	musk thistle	X	X	Yes
Cirsium vulgare	bull thistle	X	X	Yes
Cyclachaena xanthifolia	marsh elder	X		Yes
Elaeagnus angustifolia	Russian olive	X		Yes
Euphorbia esula	leafy spurge	X		Yes
Leucanthemum vulgare	oxeye daisy	X		Yes
Linaria vulgaris	yellow toadflax	X	X	Yes
Matricaria perforata	scentless chamomile	X	X	Yes
Melilotus officinale	yellow sweetclover	X	X	Yes at BLCA, transect at CURE
Onopordum acanthium	Scotch thistle	X		Yes
Phalaroides arundinacea	reed canarygrass	X	X	Yes
Potentilla recta	sulfur cinquefoil	X		Yes
Rubus armeniacus	Himalayan blackberry	X		Yes
Salsola sp.	Russian thistle	X	X	Yes
Tamarix spp.	tamarisk	X		Yes
Ulmus pumila	Siberian elm	X		Yes
Verbascum thapsus	common mullein	X	X	Yes

Green-shaded cells indicate that the IEP was found during surveys in 2015.

Table 3-2. Monitoring routes surveyed, route type, length, number of IEP patches, and number of patches/km, during the second NCPN monitoring rotation at Black Canyon of the Gunnison NP, August 26–September 2, 2015.

				Patches	
Route	**Route type**	**Length (m)**	**Area (ha)**	**Total #**	**Per kilometer**
Drainage 1	Riparian	1,787.8	1.4	23	12.9
Drainage 9	Riparian	2,138.2	1.7	12	5.6
Drainage 12	Riparian	2,198.5	3.5	20	9.1
Drainage 14	Riparian	2,727.2	1.4	9	3.3
Drainage 15	Riparian	2,056.6	1.0	14	6.8
Grizzly Gulch	Riparian	7,551.5	9.1	78	10.3
Red Rock Canyon	Riparian	4,999.1	5.0	179	35.8
	Riparian total	*23,458.9*	*23.1*	*335*	*14.3*
Gunnison River 1	Riparian	1,511.2	1.5	46	30.4
Gunnison River 5	Riparian	1,009.6	1.0	28	27.7
Gunnison River 6	Riparian	1,460.6	1.5	60	41.1
	Gunnison River total	*3,981.4*	*4.0*	*134*	*33.7*
4WD 1	Road	1,190.0	1.4	1	0.8
4WD 5	Road	376.0	0.4	0	0.0
4WD 10	Road	435.8	0.8	5	11.5
Black Canyon	Road	5,415.2	9.4	145	26.8
Closed	Road	2,994.2	4.1	32	10.7
Coral Service	Road	587.4	0.9	8	13.6
East Portal	Road	21,731.7	16.9	509	23.4
North Rim	Road	7,675.9	7.7	97	12.6
Service Road 1	Road	4,523.5	5.4	57	12.6
Service Road 2	Road	1,531.0	1.8	16	10.5
South Rim	Road	27,183.8	15.5	140	5.2
	Road total	*73,644.5*	*64.4*	*1,010*	*13.2*
Chasm View	Trail	745.5	0.7	0	0.0
Deadhorse	Trail	4,217.3	4.2	15	3.6
Dragon Point	Trail	261.5	0.2	0	0.0
Gunnison Route	Trail	1,326.2	0.7	2	1.5
North Vista	Trail	5,719.3	5.7	0	0.0
Pulpit Rocks	Trail	278.0	0.4	1	3.6
Tomichi Route	Trail	296.5	0.3	0	0.0
Warner Point Nature	Trail	1,234.1	1.2	0	0.0
Warner Route	Trail	868.7	0.9	0	0.0
	Trail total	*14,947.1*	*14.3*	*18*	*1.2*
Total		**116,031.9**	**105.9**	**1,497**	**12.9**

Table 3-3. Monitoring routes surveyed, route type, length, number of IEP patches, and number of patches/km, during the second NCPN monitoring rotation at Curecanti NRA, July 2–September 3, 2014.

				Patches	
Route	**Route type**	**Length (m)**	**Area (ha)**	**Total #**	**Per kilometer**
Blue Mesa 1	Reservoir	131,978.9	229.1	1,722	13.1
Blue Mesa 2	Reservoir	587.0	0.9	2	3.4
Blue Mesa 3	Reservoir	853.6	0.9	24	28.1
Blue Mesa 4	Reservoir	365.6	0.2	0	0.0
Blue Mesa 5	Reservoir	407.8	0.4	5	12.3
Blue Mesa 6	Reservoir	1,475.5	2.9	3	1.0
Blue Mesa 7	Reservoir	1,391.1	2.8	17	12.2
	Reservoir total	*137,059.5*	*237.2*	*1,773*	*12.9*
Cooper/Neversink	Riparian	12,847.4	7.0	310	7.4
Elk Creek Access	Road	606.5	0.6	30	49.5
Elk Creek Boneyard	Road	1,170.9	1.2	7	6.0
Elk Creek Campground	Road	3,609.6	4.0	68	18.8
Elk Creek Main	Road	1,235.2	1.8	28	22.7
Elk Creek Maintenance	Road	1,656.4	1.8	21	12.7
	Road total	*8,278.6*	*9.4*	*154*	*18.6*
Cooper Ranch River	Trail	262.4	0.3	2	7.6
Cooper Ranch	Trail	309.6	0.3	5	16.1
Dillon Pinnacles	Trail	3,125.8	5.0	19	6.1
Elk Creek to Old HW 50	Trail	266.3	0.3	4	15.0
Neversink	Trail	910.7	0.7	19	20.9
Pine Creek	Trail	1,383.8	1.7	2	1.4
	Trail total	*6,258.5*	*8.2*	*51*	*8.1*
Total		**164,444**	**25**	**2,288**	**13.9**
Incidental Observation Ponderosa CG		42.0	0.1	3	71.4

Table 3-4. Species observed and patch size class detected along all monitoring routes, Black Canyon of the Gunnison National Park, August 26–September 2, 2015.

Scientific name	Common name	Total patches	Patch size class*				
			1	2	3	4	5
Acosta maculosa	spotted knapweed	38	14	7	12	3	2
Acroptilon repens	Russian knapweed	16	4	5	6	1	0
Arctium minus	common burdock	13	4	8	1	0	0
Bassia sieversiana	kochia	24	1	5	3	5	10
Breea arvensis	Canada thistle	112	25	44	29	5	9
Cardaria spp.	hoary cress, whitetop	1	0	1	0	0	0
Carduus nutans	musk thistle	288	88	70	61	41	28
Cirsium vulgare	bull thistle	12	6	5	1	0	0
Cyclachaena xanthifolia	marsh elder	8	4	1	1	1	1
Leucanthemum vulgare	oxeye daisy	2	1	1	0	0	0
Linaria vulgaris	yellow toadflax	2	0	0	2	0	0
Matricaria perforata	scentless chamomile	1	0	0	1	0	0
Melilotus officinale	yellow sweetclover	575	32	46	128	42	327
Onopordum acanthium	Scotch thistle	2	1	0	1	0	0
Phalaroides arundinacea	reed canarygrass	117	1	0	83	23	10
Salsola sp.	Russian thistle	25	1	3	8	8	5
Tamarix ramosissima	tamarisk	1	1	0	0	0	0
Ulmus pumila	Siberian elm	5	2	2	0	1	0
Verbascum thapsus	common mullein	255	35	52	68	5	95
Priority totals		**1,497**	**220**	**250**	**405**	**135**	**487**

*Patch size classes: 1=1–a few plants (≤2 × 2 m), 2=few plants–40 m^2 (48 yd^2), 3=40–400 m^2 (48–478 yd^2), 4=400–1,000 m^2 (0.1–0.25 acre), 5=1,000–2,000 m^2 (0.25–0.5 acre).

Table 3-5. Number of monitoring transects where IEP species were detected/total number of transects monitored, mean percent cover, and standard error by area at Black Canyon of the Gunnison NP, August 26–September 2, 2015.

		Gunnison River		Northern Roads[1]		Southern Roads[2]		Red Rock Canyon	
Scientific name	Common name	Detected (of 8)	Percent cover (SE)	Detected (of 50)	Percent cover (SE)	Detected (of 98)	Percent cover (SE)	Detected (of 10)	Percent cover (SE)
Acosta maculosa	spotted knapweek	0	0.00 (0.00)	1	0.01 (0.01)	0	0.00 (0.00)	0	0.00 (0.00)
Anisantha tectorum	cheatgrass	3	0.08 (0.04)	21	0.53 (0.24)	39	0.45 (0.34)	9	3.30 (2.60)
Bassia sieversiana	kochia	0	0.00 (0.00)	0	0.00 (0.00)	0	0.00 (0.00)	2	0.10 (0.07)
Breea arvensis	Canada thistle	1	0.02 (0.02)	0	0.00 (0.00)	6	0.02 (0.01)	0	0.00 (0.00)
Carduus nutans	musk thistle	0	0.00 (0.00)	1	0.01 (0.01)	2	0.01 (<0.01)	1	0.17 (0.17)
Melilotus officinale	yellow sweetclover	1	0.04 (0.00)	24	2.38 (0.85)	33	0.68 (0.21)	1	0.02 (0.02)
Phalaroides arundinacea	reed canarygrass	6	7.00 (4.26)	0	0.00 (0.00)	0	0.00 (0.00)	5	5.00 (3.11)
Salsola sp.	Russian thistle	0	0.00 (0.00)	0	0.00 (0.00)	1	<0.01 (<0.01)	2	0.23 (0.18)
Verbascum thapsus	common mullein	0	0.00 (0.00)	0	0.00 (0.00)	12	0.07 (0.02)	0	0.00 (0.00)
All invasive species		**7**	**7.15 (4.59)**	**37**	**2.93 (0.86)**	**63**	**1.22 (0.39)**	**10**	**8.82 (3.67)**

All other routes had total percent cover of all invasives of <0.60%.

[1]Black Canyon and North Rim roads

[2]South Rim and East Portal roads

Table 3-6. Number of monitoring transects where IEP species were detected/total number of transects monitored, mean percent cover, and standard error by area at Curecanti NRA, July 2–September 3, 2014.

		Blue Mesa		Cooper/Neversink	
Scientific name	Common name	Detected (of 249)	Percent cover (SE)	Detected (of 25)	Percent cover (SE)
Anisantha tectorum	cheatgrass	16	0.02 (0.01)	0	0.00 (0.00)
Bassia sieversiana	kochia	2	<0.01 (<0.01)	0	0.00 (0.00)
Breea arvensis	Canada thistle	17	0.08 (0.03)	9	1.96 (1.07)
Cardaria latifolia	perennial pepperweed	8	0.12 (0.08)	0	0.00 (0.00)
Carduus nutans	musk thistle	7	0.02 (0.01)	0	0.00 (0.00)
Cirsium vulgare	bull thistle	1	<0.01 (0.01)	0	0.00 (0.00)
Linaria vulgaris	yellow toadflax	1	<0.01 (<0.01)	0	0.00 (0.00)
Matricaria perforata	scentless chamomile	8	0.19 (0.11)	0	0.00 (0.00)
Melilotus officinale	yellow sweetclover	9	0.04 (0.03)	0	0.00 (0.00)
Phalaroides arundinacea	reed canarygrass	4	0.06 (0.04)	23	16.33 (4.50)
Salsola sp.	Russian thistle	6	0.04 (0.02)	0	0.00 (0.00)
Verbascum thapsus	common mullein	14	0.06 (0.02)	0	0.00 (0.00)
All invasive species		73	0.63 (0.15)	22	18.29 (4.38)

All other routes had total percent cover of all invasives of <0.60 %.

Table 3-7. Priority species observed and size of patches detected in 2003–2004, compared to data collected along the same routes at Black Canyon of the Gunnison National Park in 2010–2012 and 2014–2015.

		Gunnison River			Red Rock Canyon			East Portal Road			South Rim Road			Northern Roads^		
Scientific name	**Common name**	**2003–2004**	**2010–2012**	**2014–2015**	**2003–2004**	**2010–2012**	**2014–2015**	**2003–2004**	**2010–2012**	**2014–2015**	**2003–2004**	**2010–2012**	**2014–2015**	**2003–2004**	**2010–2012**	**2014–2015**
Acosta maculosa	spotted knapweed	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1
Acroptilon repens	Russian knapweed	0	0	0	0	0	0	0	5	2	0	0	0	5	3	3
Arctium minus	common burdock	8	9	1	52	42	11	3	0	1	1	0	0	0	0	0
Bassia sieversiana[1]	kochia	NA	0	0	NA	0	3	NA	0	1	NA	0	0	NA	0	0
Breea arvensis	Canada thistle	32	51	14	48	11	12	32	61	36	7	4	5	6	5	2
Cardaria sp.[1]	hoary cress, whitetop	NA	0	0	NA	0	0	NA	0	0	NA	0	0	NA	0	0
Carduus nutans	musk thistle	14	2	1	47	36	9	52	102	78	2	5	4	33	31	57
Cirsium vulgare	bull thistle	25	10	7	1	1	1	25	2	1	1	0	0	0	1	2
Cyclachaena xanthifolia	marsh elder	0	0	0	0	0	1	0	0	0	0	0	0	3	0	1
Linaria vulgaris	yellow toadflax	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Matricaria perforata[1]	scentless chamomile	NA	0	0	NA	0	0	NA	0	1	NA	0	0	NA	0	0
Onopordum acanthium[1]	Scotch thistle	NA	0	0	NA	0	0	NA	0	0	NA	0	0	NA	0	0
Phalaroides arundinacea[1]	reed canarygrass	NA	98	39	NA	59	39	NA	3	0	NA	0	0	NA	1	0
Salsola australis[2]	Russian thistle	0	0	0	0	0	0	0	0	2	0	0	0	15	18	9
Tamarix chinensis	tamarisk	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Ulmus pumila	Siberian elm	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0
Verbascum thapsus	common mullein	58	63	12	24	12	14	72	171	176	7	7	7	1	0	1
Priority totals, 2010–2015		**NA**	**234**	**76**	**NA**	**161**	**90**	**NA**	**348**	**302**	**NA**	**16**	**16**	**NA**	**60**	**76**
Priority totals, 2003–2015		**141**	**136**	**37**	**173**	**104**	**48**	**184**	**345**	**301**	**18**	**16**	**16**	**65**	**59**	**76**

[1]Not a priority species in 2003–2004, but has been a priority species 2010–2015.

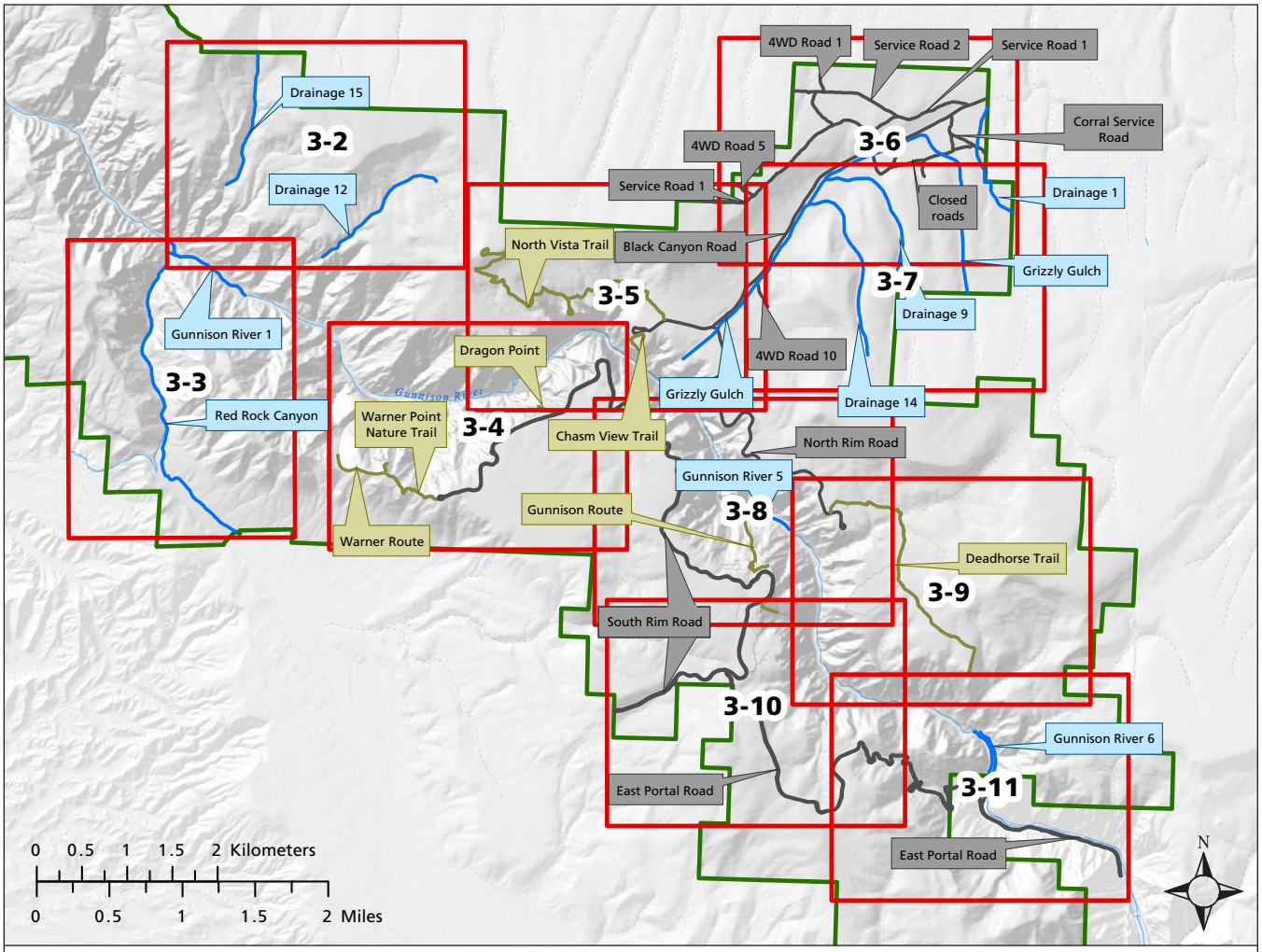
[2]Not listed as a priority in 2003 and 2004 but was recorded along the Northern Roads in 2003–2004.

^Black Canyon and North Rim roads

Table 3-8. Priority species observed and size of patches detected along the same routes at Curecanti NRA in 2010–2012 and 2014–2015.

		Blue Mesa		Cooper/Neversink Trails		Elk Creek		Mesa Trails^	
Scientific name	**Common name**	**2010–2012**	**2014**	**2010–2012**	**2014**	**2010–2012**	**2014**	**2010–2012**	**2014**
Acosta diffusa	diffuse knapweed	0	0	0	0	0	1	0	0
Acosta maculosa	spotted knapweed	0	0	0	0	0	1	0	0
Acroptilon repens	Russian knapweed	6	3	0	0	1	0	0	0
Arctium minus	common burdock	1	0	0	1	0	0	1	0
Bassia sieversiana	kochia	72	51	0	0	113	44	2	1
Breea arvensis	Canada thistle	367	488	18	8	6	22	4	6
Cardaria latifolia	perennial pepperweed	4	62	0	0	0	0	0	0
Cardaria sp.	hoary cress, whitetop	11	0	0	0	0	0	0	0
Carduus nutans	musk thistle	238	274	0	0	1	2	3	4
Cirsium vulgare	bull thistle	38	51	0	0	0	1	0	2
Cyclachaena xanthifolia	marsh elder	0	1	0	0	0	0	0	0
Elaeagnus angustifolia	Russian olive	2	1	0	0	0	0	0	0
Euphorbia esula	leafy spurge	0	1	0	0	0	0	0	0
Leucanthemum vulgare	oxeye daisy	16	16	0	0	0	0	0	0
Linaria vulgaris	yellow toadflax	0	4	0	0	0	0	0	0
Matricaria perforata	scentless chamomile	44	73	4	1	8	5	0	0
Phalaroides arundinacea	reed canarygrass	12	78	8	15	0	0	0	0
Potentilla recta	sulfur cinquefoil	0	0	0	2	0	0	0	0
Rubus armeniacus	Himalayan blackberry	0	2	0	0	0	0	0	0
Salsola sp.	Russian thistle	101	201	1	0	87	69	0	2
Tamarix sp.	tamarisk	2	4	0	0	0	0	0	0
Ulmus pumila	Siberian elm	2	1	0	0	0	0	0	0
Verbascum thapsus	common mullein	268	462	0	0	2	2	3	5
Priority totals, 2010–2015		**1,184**	**1,773**	**31**	**27**	**218**	**147**	**13**	**20**

^Dillon Pinnacles and Pine Creek trails



Black Canyon of the Gunnison NP Weed Monitoring Areas, 2015

Monitoring route types

- Drainage
- Road
- Trail
- Subsequent map figures
- Park boundary

Monitoring Areas

3-2: Green Mountain
3-3: Red Rock Canyon
3-4: Warner Point Nature Trail
3-5: North Vista Trail
3-6: Black Canyon Road
3-7: Grizzly Gulch
3-8: North Rim Road
3-9: Deadhorse Trail
3-10: East Portal Road
3-11: East Portal to Campground

Monitoring routes: 72.3 miles/129.3 kilometers; Area surveyed: 252 acres/106 hectares; IEP patches mapped: 1,497

Figure 3-1. Index map of invasive plant monitoring routes, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

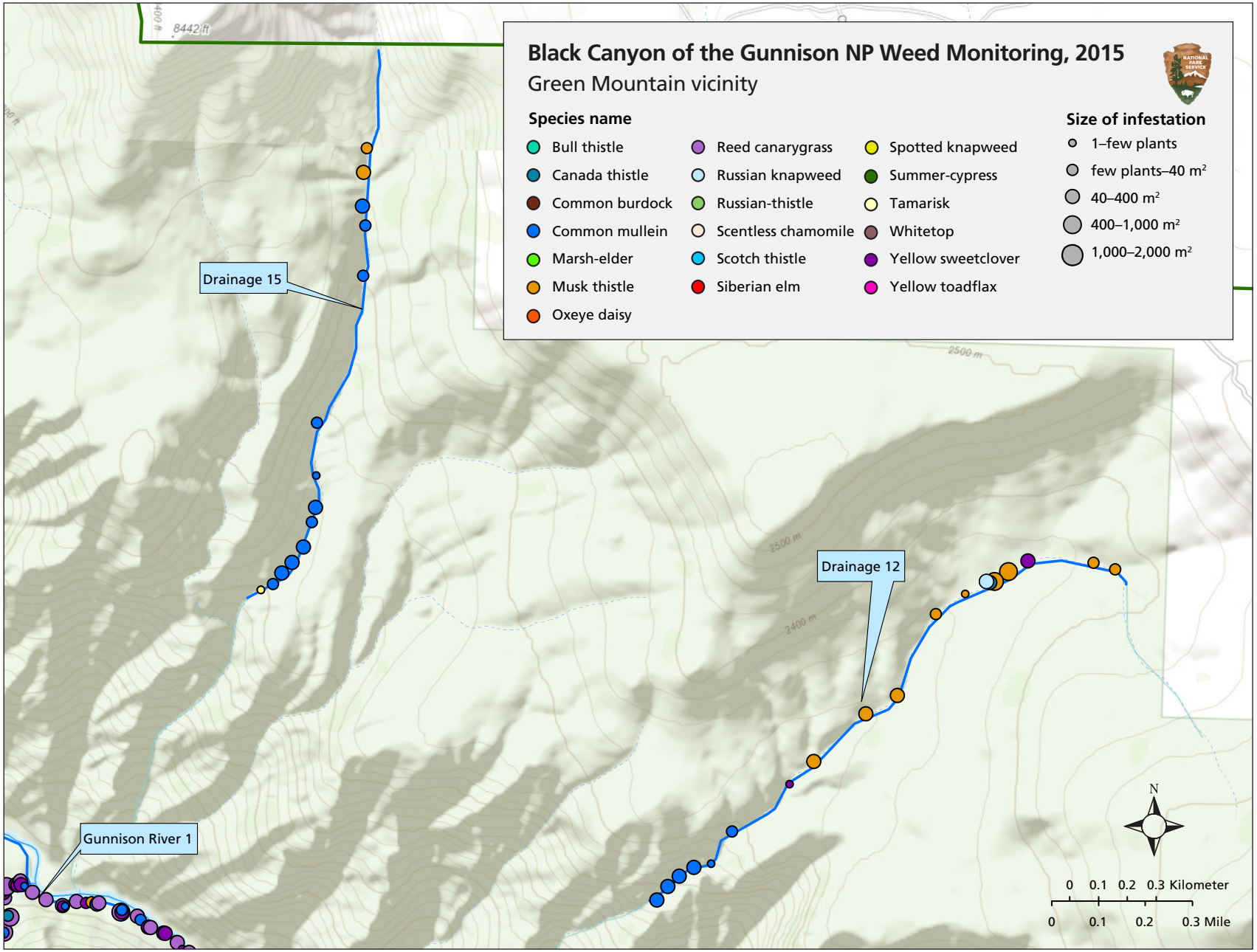


Figure 3-2. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of Green Mountain, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

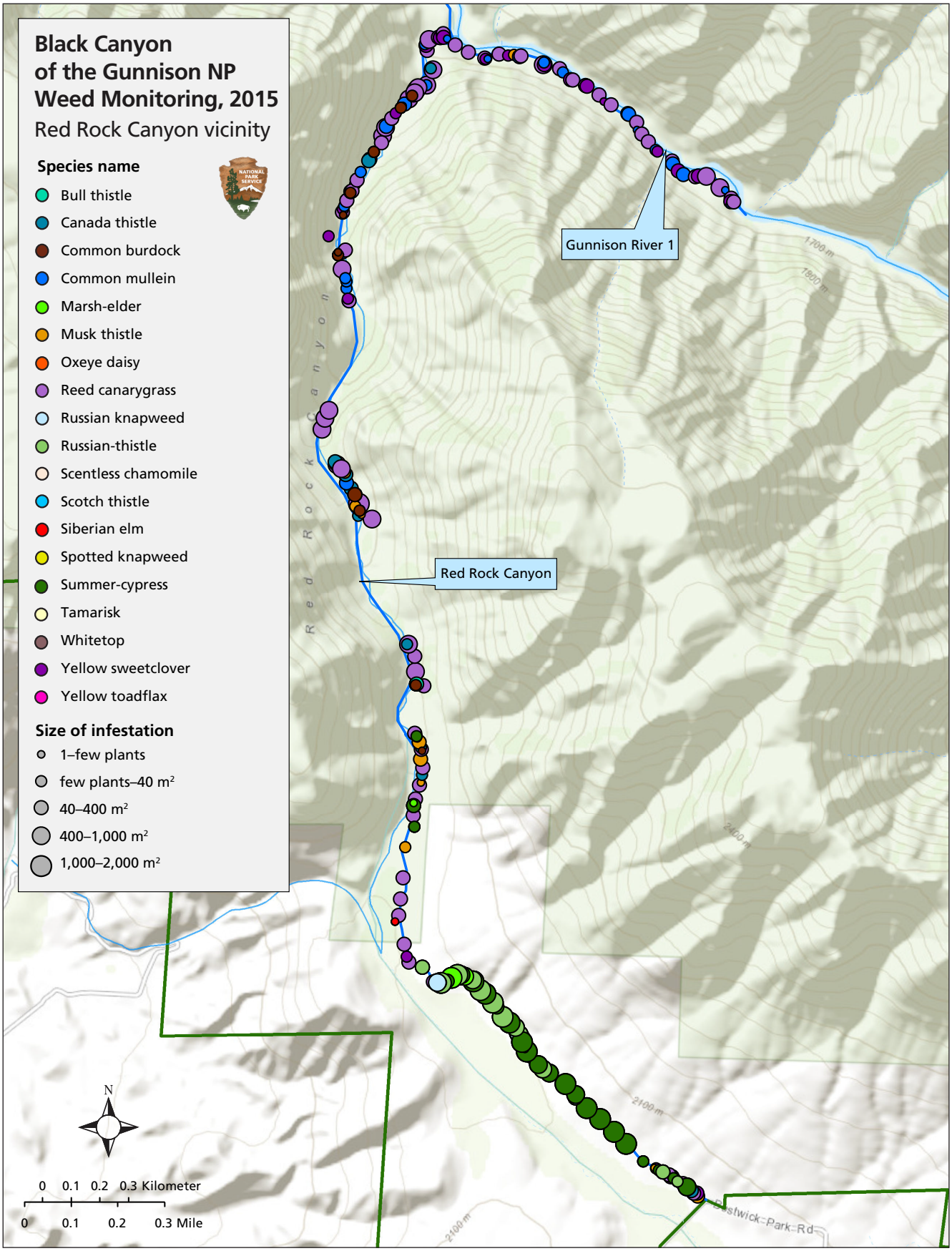


Figure 3-3. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of Red Rock Canyon, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

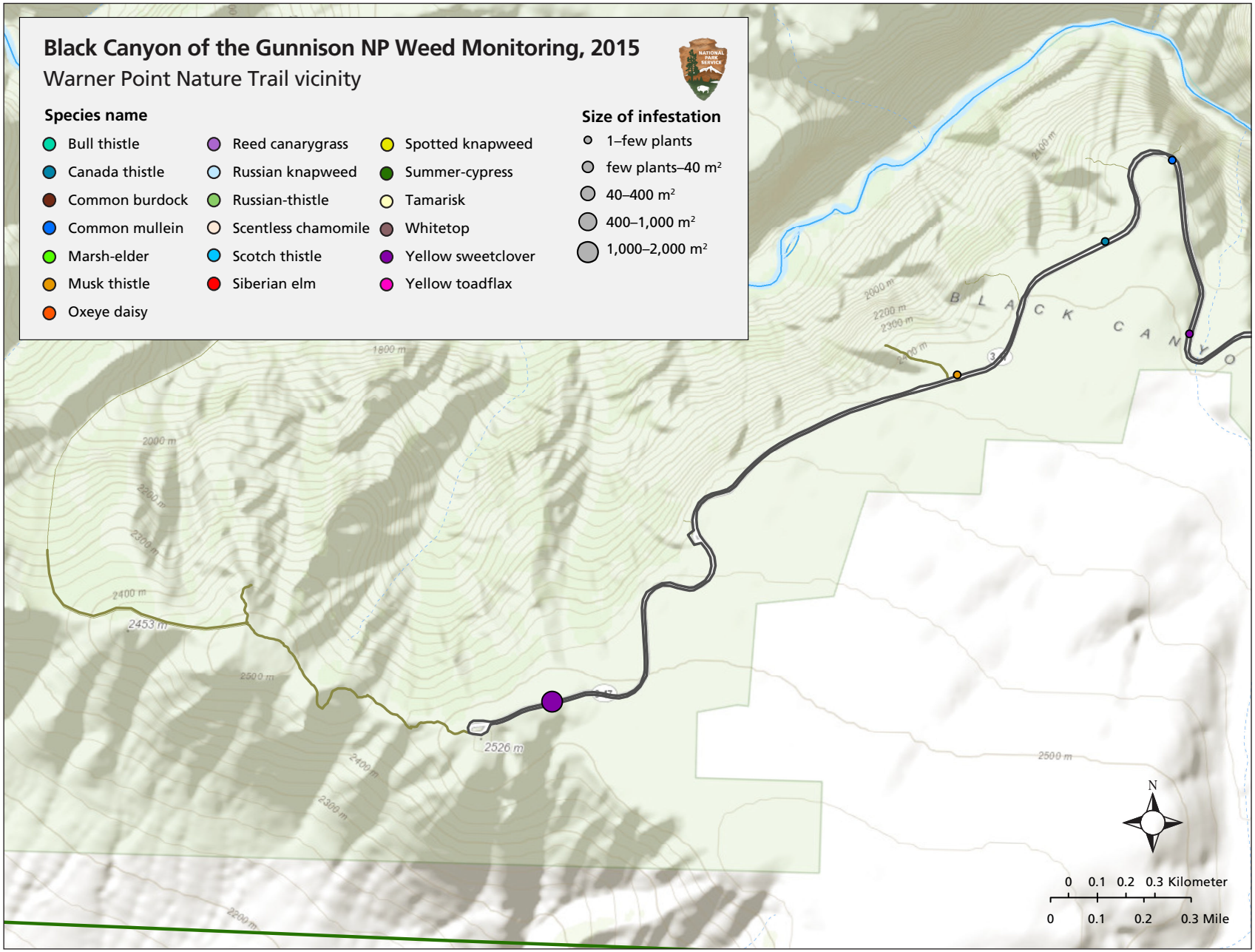


Figure 3-4. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of Warner Point Nature Trail, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

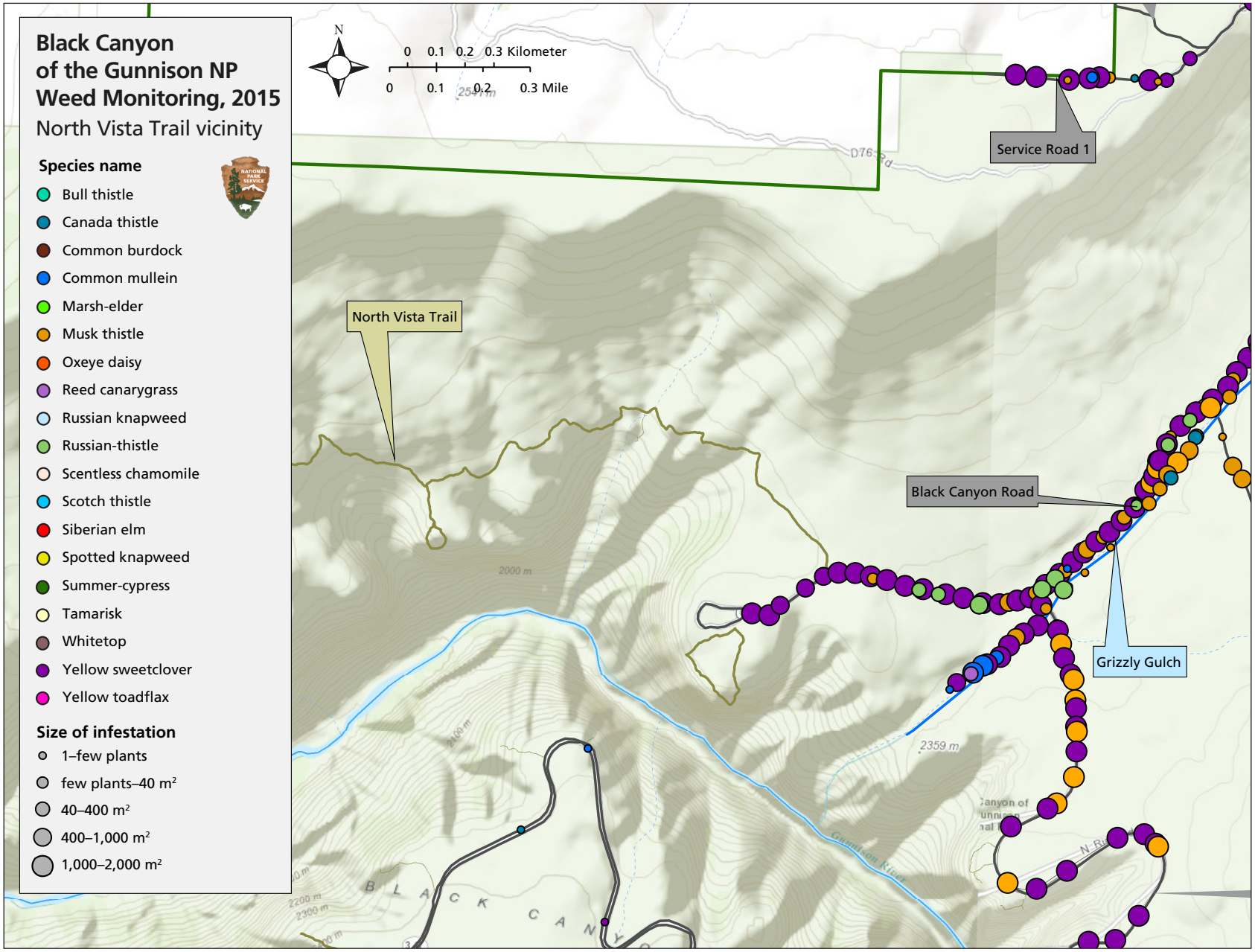


Figure 3-5. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of North Vista Trail, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

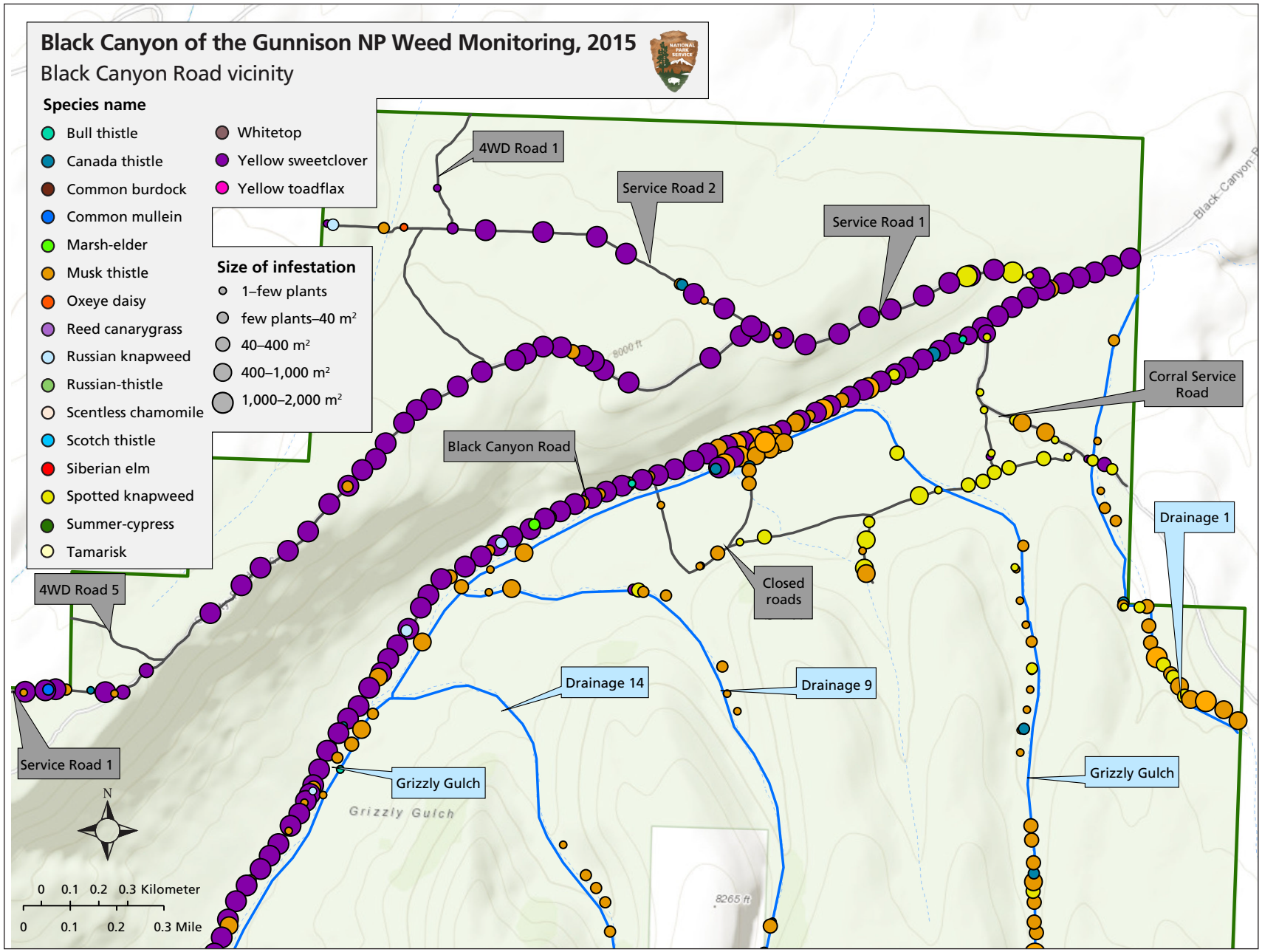


Figure 3-6. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of Black Canyon Road, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

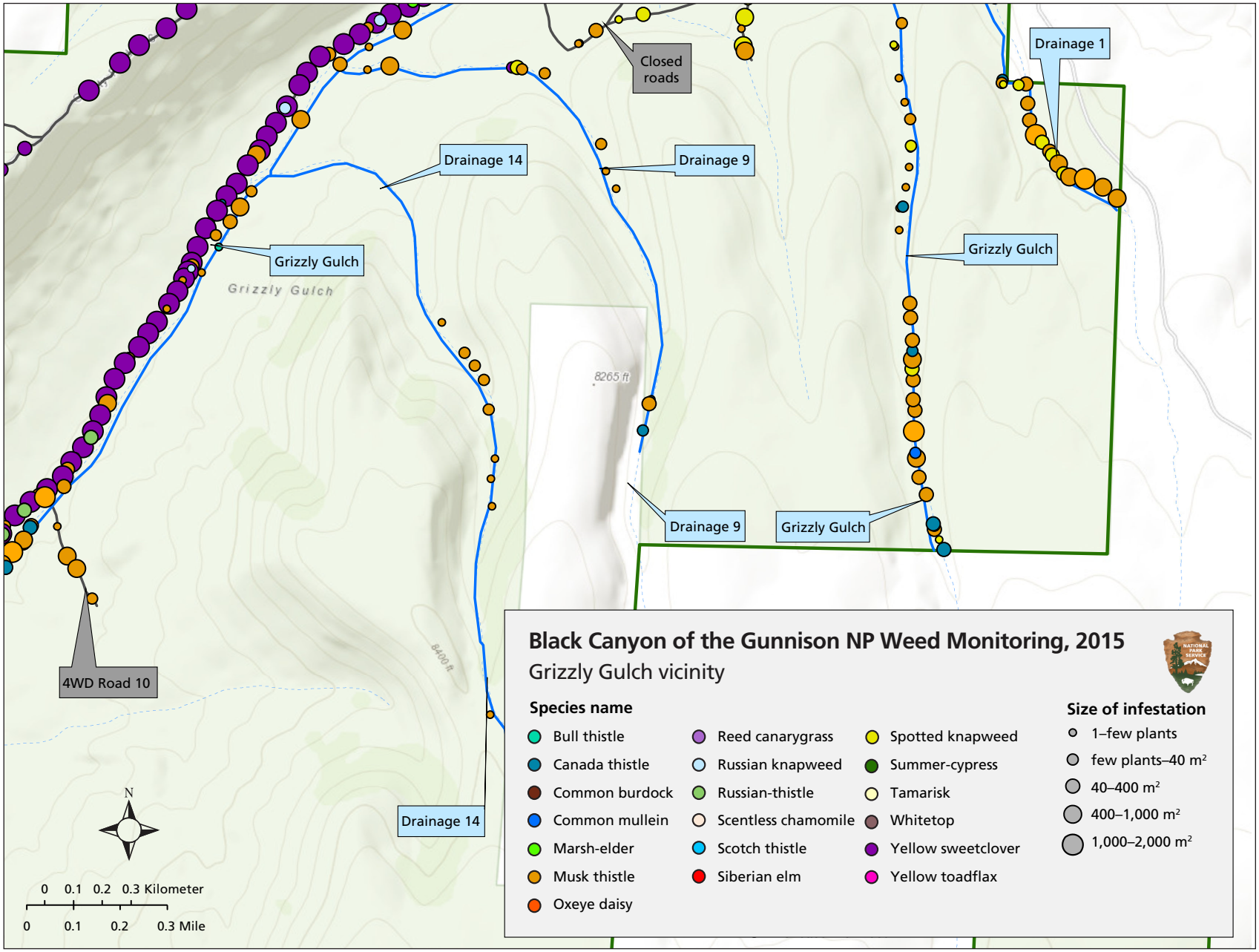


Figure 3-7. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of Grizzly Gulch, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

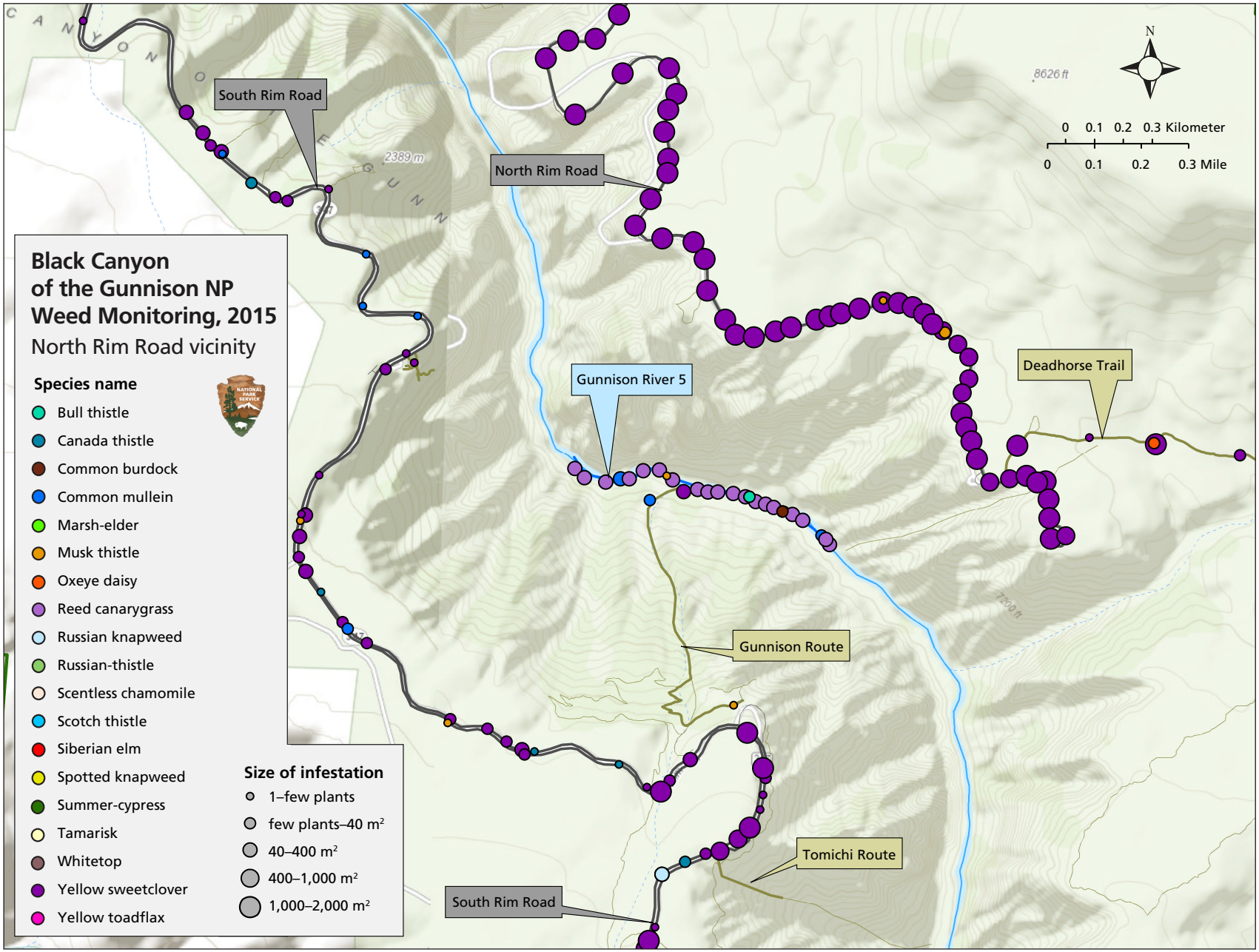


Figure 3-8. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of North Rim Road, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

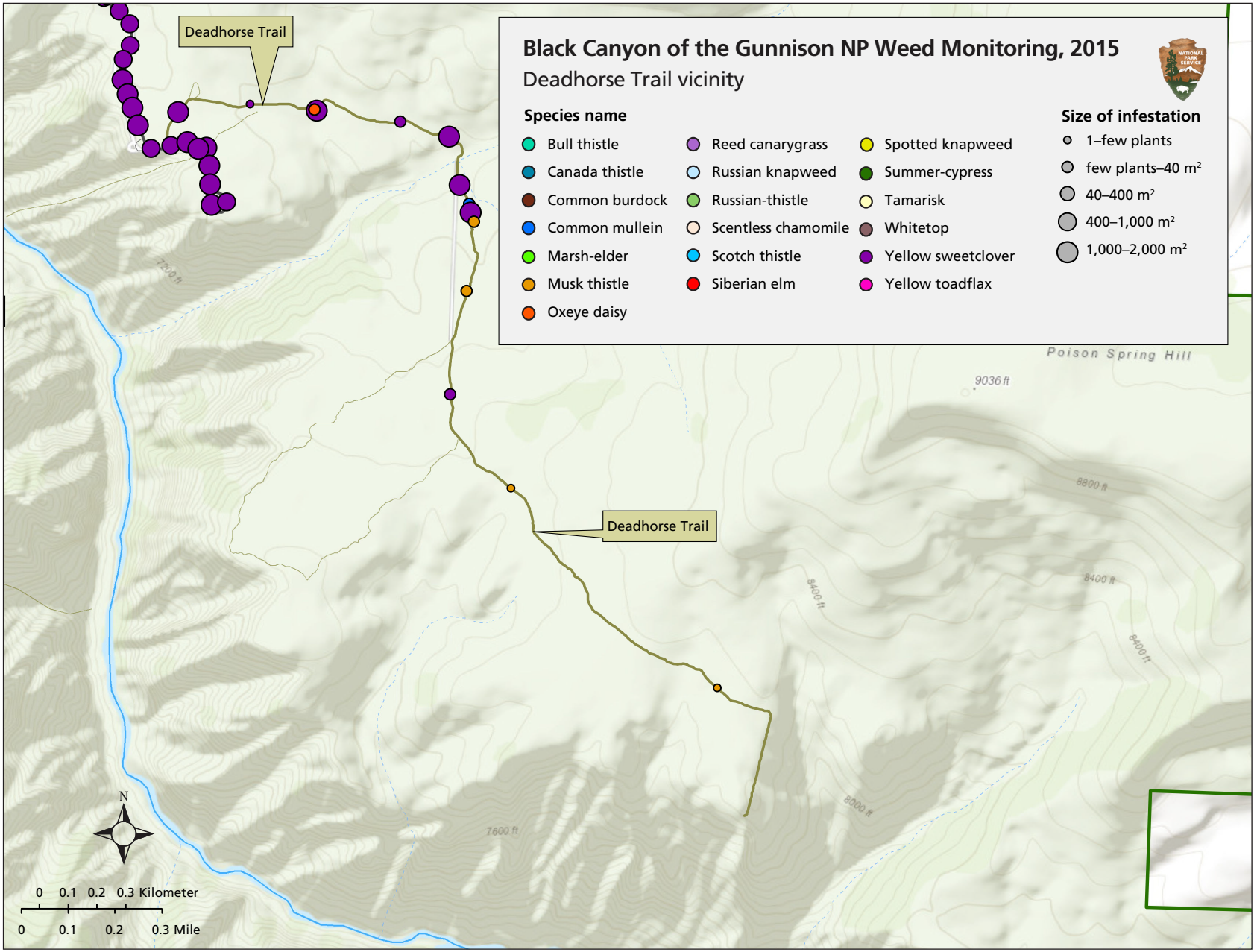


Figure 3-9. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of Deadhorse Trail, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

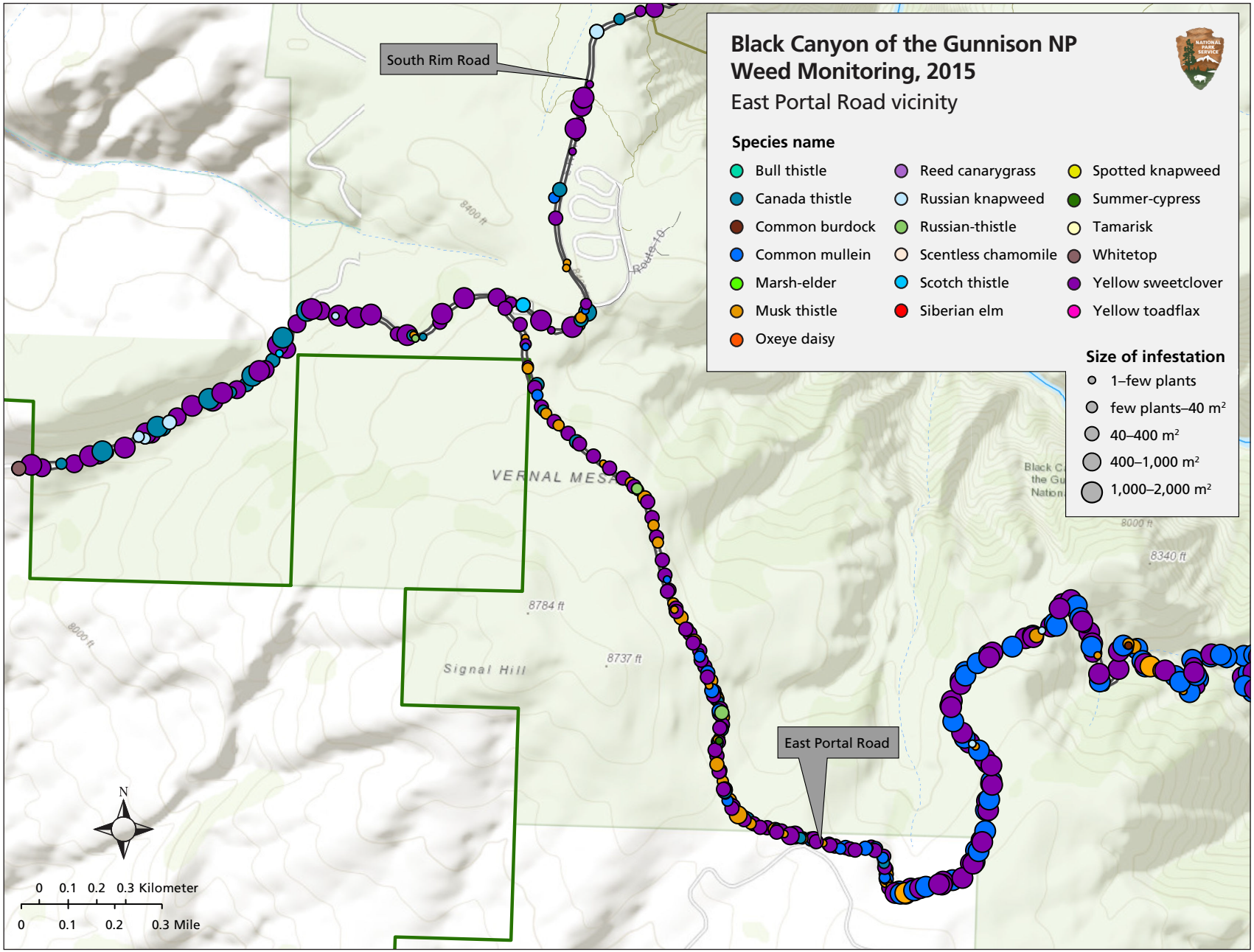


Figure 3-10. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of East Portal Road, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

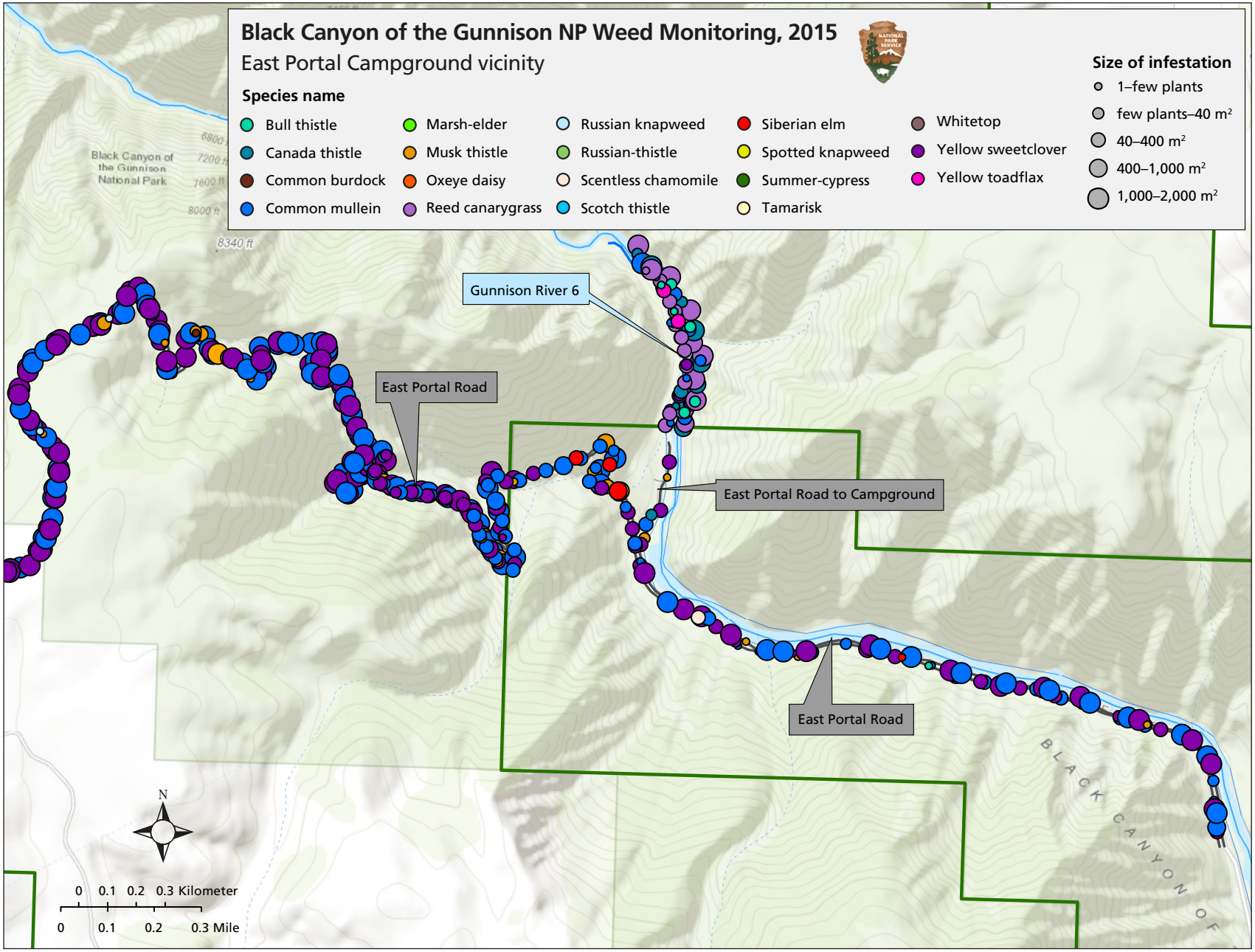


Figure 3-11. Invasive plants detected on monitoring routes and monitoring quadrats in the vicinity of East Portal Campground, Black Canyon of the Gunnison NP, August 26–September 2, 2015.

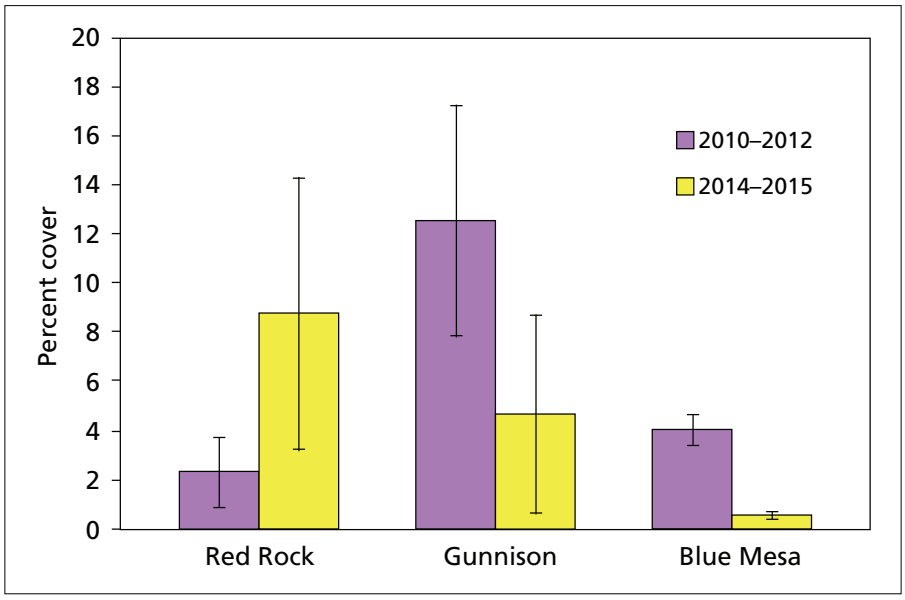


Figure 3-12. Total percent cover of invasive plants in Red Rock Canyon, along the Gunnison River, and on the shores of Blue Mesa Reservoir from monitoring conducted between 2010–2012 and 2014–2015.

4 Discussion

4.1 Priority invasive exotic plant list

The NCPN will continue to work with park staff and area IEP experts to review and update the list of priority species each year. Presence and absence data for most priority species, and presence data for other species, should be reliable for the area surveyed. However, absence data for non-priority species are suspect, because not all observers recorded all of these species in all years. We did not add any new species to the priority list in 2015 and no additions are suggested for future years.

4.2 Possibilities for management control

In 2014–2015, priority IEPs were most widespread along the shores of Red Rock Canyon, the Gunnison River, the Black Canyon Road, Blue Mesa Reservoir and the Elk Creek Management Area. Canada thistle, common mullein, yellow sweetclover, musk thistle, reed canarygrass, and Russian thistle were the most common IEPs. All of these species, except for reed canarygrass, could be controlled with sufficient resources. Reed canarygrass was widespread along the Cooper/Neversink area, Red Rock Canyon, and the Gunnison River.

It should be noted that estimates of percent cover in this report (see Tables 3-5, 3-6) are limited to the routes surveyed. Actual percent cover of IEPs across the entire park cannot be inferred with these methods. Because we have chosen to monitor along areas most likely to be invaded by a broad suite of IEPs, it is plausible that the percent cover for most IEP species is lower in the interior of the park than along the monitoring routes.

4.3 Comparison of sample periods

Black Canyon of the Gunnison NP was monitored for IEPs in 2003–2004, 2010–2012, and 2014–2015, while Curecanti NRA was only monitored in the latter two time periods. Methods differed slightly between the project conducted in 2003–2004 and this one, and it should be noted that mapping is subjective. For example, one observer may identify two small patches separated by 45 meters (the patch separation rule is 50 m, but exact measurements are not made in the field) as two patches, while another observer may identify them as one large patch. Therefore, although general comparisons and species with major differences between the two survey periods are useful (if somewhat problematic) and likely represent biological differences, smaller changes may not reflect biologically important differences.

The number of patches has decreased along the Gunnison River. However, the park has not focused control work there. Environmental peak flows may be having an effect on some of these species.

It is encouraging to see declines in patch numbers in Red Rock Canyon, in Canada thistle and musk thistle along the East Portal Road, and in Russian thistle along the Northern Roads. Park staff has been doing control work for common mullein, Russian knapweed, bull thistle, Scotch thistle, Russian thistle, Canada thistle, and musk thistle along the East Portal Road and Red Rock Canyon. Musk thistle has increased along the Northern Roads.

However, control efforts cannot be conducted safely on foot for portions of this road due to steep terrain and sliding rocks. In these areas, the park is working work with the Bureau of Reclamation to do vehicular spraying, which can be performed from a vehicle rather than on foot. However, several new species were detected in Black Canyon, and keeping these at low levels or eradicating them will take concerted effort. There are still large areas of the park where there are few patches. Efforts should be made to keep these areas free of priority invasive plants.

The decreases seen at Black Canyon of the Gunnison NP were contrasted with large increases and several new species detected along the shores of Blue Mesa Reservoir at Curecanti NRA, where the park has not been able to complete very much control work. However, overall patch numbers did decrease at the Elk Creek Management Area, where the park has focused control efforts on kochia, Russian thistle, and cheatgrass in conjunction with a restoration project.

Despite these efforts, three new IEP species were detected in this area.

4.4 Future monitoring efforts

IEPs at Black Canyon of the Gunnison NP and Curecanti NRA will generally be monitored at the same time of year. Consistency in timing of monitoring should ensure consistency in detection probabilities and cover estimates of most species. For many species, sampling any time from May through September is not expected to drastically alter the chances of detecting invasive species larger than the MDTS. The NCPN will monitor invasive plants for two years out of three and then take one year off. In 2017, the network will return to start the third revisit at Curecanti NRA and the fourth revisit at Black Canyon of the Gunnison NP.

Long-term trend reporting will focus on trends in species distributions, trends in percent cover of individual species, and changes in IEP percent cover of priority species and cheatgrass by monitoring route. Extra-area surveys will also be considered for inventories at the park's request.

5 Literature Cited

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Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Acroptilon repens	Russian knapweed	FALSE		4267751	266898.41	5	1	EP
East Portal Road	Acroptilon repens	Russian knapweed	FALSE		4268142.7	267139.12	4	1	EP
East Portal Road	Arctium minus	Common burdock	FALSE		4268091.6	267439.27	5	1	EP
East Portal Road	Bassia sieversiana	Kochia	TRUE		4267760.6	266020.47	5	1	EP
East Portal Rd to Campground	Breea arvensis	Canada thistle	FALSE		4267460.9	269018.24	4	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267400.5	266411.95	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268797.7	265525.97	1	3	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268995.2	265389.66	3	3	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267389.8	266540.93	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4266978.5	269463.55	1	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268003.7	267532.18	3	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267007.6	269318.55	2	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267897.7	267947.13	3	3	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268629.5	265739.54	3	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267321	266598.59	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267492.5	266098.48	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267431.7	266313.07	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267503.1	266955.3	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267456.4	266220.55	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267337.2	266591.84	3	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267754.3	266015.4	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267907.4	266006.87	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268469.7	265803.14	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267424.2	266302.88	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267111.7	269168.59	1	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267276.4	266595.79	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267646.5	266025.34	3	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267063.9	269250.51	1	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267544	266062.28	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267960.1	267831.23	3	3	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267585.3	266038.74	1	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267488.6	266117.85	2	3	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268122.4	267113.84	5	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267897.4	266016.94	3	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4266975.3	269547.9	4	1	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267801.9	266028.14	2	3	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268674.9	265683.41	1	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268151.5	265911.02	2	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4268905	265410.6	3	2	EP
East Portal Road	Breea arvensis	Canada thistle	FALSE		4267577.8	266041.48	4	2	EP
East Portal Rd to Campground	Carduus nutans	Musk thistle	FALSE		4267380	268994.78	2	2	EP
East Portal Rd to Campground	Carduus nutans	Musk thistle	FALSE		4267590.3	269073.69	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268992.9	265384.2	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268143.7	267144.24	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267905.8	266013.25	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4266970.3	269526.65	3	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267021.8	269345.6	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4269051.6	265357.65	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267467.3	266166.14	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267382.7	268427.31	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268507.1	265792.93	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267843.6	266031.8	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4269157.1	265348.43	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267301.2	268483.17	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267309.4	268490.16	3	4	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE	Mature Tree(s)	4267543.6	268910.9	3	4	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267437.8	266246.18	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267358.3	266902.23	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267933.4	267629.36	4	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268005	267555.12	3	4	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267257.6	266612.4	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268603.4	265763.03	1	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267741.5	266909.08	4	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267503.1	266102.24	3	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267271.8	266597.64	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267236.1	266681.63	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267504	266086.88	1	4	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268854.6	265464.54	1	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267573.1	268088.14	1	4	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268125	267120.72	2	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268087.2	267457.59	3	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267423	266308.41	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4266733.7	270737.35	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267953.1	267354.48	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267405.9	266381	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267952.7	265986.15	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267473.6	266129.47	1	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267679.6	266012.57	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE	Sapling(s)	4267559.6	268866.41	2	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267620.5	266032.39	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267549.4	268166.92	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267690.4	266013.77	2	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268097.8	267438.9	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268238	267254.43	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE	Mature Tree(s)	4267282.4	268991.07	3	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268018.9	267515.85	1	5	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268057.1	267332.12	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE	Sapling(s)	4267611	268821.91	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267765.5	266012.74	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268237.6	265861.61	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4266962.6	269908.31	3	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267443.7	266269.06	2	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267554.7	266055.87	2	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268058.3	267884.94	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268106.3	265934.21	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268215.3	265865.93	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268052.2	267665.18	3	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268058.1	267716.6	3	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267969.1	265990.51	2	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267575.8	268541.89	2	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267364.5	266586.81	4	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267299	266598.87	2	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268027.2	265966.65	1	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267378.6	268436.08	2	5	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268187	265888.39	2	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4266987.7	269532.59	4	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4266456.6	270971.36	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268135.3	265910.84	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268447.5	265808.45	1	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268895.1	265421.15	3	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268721.4	265618.97	5	1	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267453	266215.01	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267233.5	266665.62	1	5	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE	Sapling(s)	4267710.1	268859.57	1	4	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268655	265714.12	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4267769.8	266019.67	2	2	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE		4268181.8	267190.76	1	3	EP
East Portal Road	Carduus nutans	Musk thistle	FALSE	Sapling(s)	4267706.3	268841.4	4	1	EP
East Portal Road	Cirsium vulgare	Bull thistle	FALSE		4266938.3	269979.86	3	1	EP
East Portal Road	Matricaria perforata	Scentless chamomile	FALSE		4267106.1	269180.47	1	3	EP
East Portal Rd to Campground	Melilotus officinale	Yellow sweetclover	FALSE		4267476.6	269049.79	1	3	EP
East Portal Rd to Campground	Melilotus officinale	Yellow sweetclover	FALSE		4267644.7	269080.26	1	3	EP
East Portal Rd to Campground	Melilotus officinale	Yellow sweetclover	FALSE		4267358.9	268981.25	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267496.4	268366.41	1	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267386.2	266473.21	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267613.3	268061.32	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267570.1	268078.85	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266441.2	270970.71	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267520.8	268303.03	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268022.3	267894.34	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267646	267982.28	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267540	268186.57	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268917.6	265403.77	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267133.3	269130.45	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267634.8	268721.66	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267527.6	268241.77	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266988.8	269556.34	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266797.5	270541.07	1	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267022.2	269310.5	1	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267260	268994.55	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267533.2	268903.62	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266680.4	270893	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267413.2	268952.4	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267290.8	268545.12	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE	Sapling(s)	4267646.4	268886.6	4	1	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266445.7	270970.15	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267520.5	266952.21	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267649.9	268097.3	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266763.2	270638.07	1	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267352.8	268962.66	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266675.9	270881.26	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266922.1	270054.9	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267998.9	267872.28	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267592.8	267994.46	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267604.8	268609.35	2	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267393.9	268429.56	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266833.3	270417.22	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267629.8	268036.42	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267542.1	268220.6	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267602.7	268065.89	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267838	267973.24	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267383.1	268502.64	5	1	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267286.5	268979.46	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267796.3	267981.13	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266969.7	269862.97	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267575.6	268513.95	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266997.6	269767.52	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266981.8	269508.39	2	1	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266597.7	270958.77	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267263.9	266781.77	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267331.3	268531.88	4	1	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267538.2	268132.14	2	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267009.4	269777.63	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267109.9	269192.3	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266829.6	270506.1	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267469.6	268937.12	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267667.7	268099.45	2	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266882.9	270160.02	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266750.6	270708.86	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267562.8	268119.63	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267410.2	266932.69	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267788.7	266862.43	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267582.6	268540.6	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267578.4	268443.76	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267466.4	268397.73	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267529.6	268303.44	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE	Sapling(s)	4267701.7	268831.48	4	1	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267489.7	268482.5	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267642.8	268707.96	4	1	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267878.2	266824.76	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267509.3	268353.41	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268053.6	267891.78	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267418.6	268492.46	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267670.6	268070.78	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268219.1	267199.76	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267939.9	267876.97	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267396.8	266421.71	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267460.3	266186.84	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267244.1	266695.94	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268040.3	265958.42	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267612.4	266962.26	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267997.8	267666.33	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268175.3	267278.72	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267263.5	266793.14	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268004.1	267566.13	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268156.7	267170.45	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267666.5	268077.66	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267654.3	266020.04	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268066.6	266968.29	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267411.9	266356.31	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267755	266887.7	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267046.5	269294.12	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267590.2	266042.14	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266907	270075.03	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268220	265870.5	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267535.1	266069.02	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267252	266608.99	3	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267434.9	266283.24	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268985.7	265382.01	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268386.5	265823.35	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4269058.6	265356.95	2	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268642.3	265725.61	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267938	267889.74	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267382.7	266491.86	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267854.2	266021.73	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267970.2	266857.15	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267527.7	266065.3	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267487.2	266107.13	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268278.4	265841.11	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267593.7	266035.83	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267729.1	266006.43	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267461.7	266162.52	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267804.7	266022.69	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267981.2	265979.58	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268148.7	265904.56	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267553	266948.14	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267917	266001.5	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267932.4	266002.17	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268209	265872.17	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267415.9	266929.63	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268071.8	267406.17	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268099.2	267313.37	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4269260.2	265278.45	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268028	267496.16	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267993.3	267337.57	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267286.3	266863.48	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268116	267082.11	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268248.7	267239.69	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267899	266827.33	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267248.5	266684.01	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267316.2	266598.73	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267432.2	266266.59	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267817	266031.72	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267474.1	266140.18	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268466.4	265803.04	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268747.2	265585.19	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268533.9	265788.4	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267392.3	266547.93	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267873.1	266024.78	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267734.6	268008.94	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267600.8	268013.49	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267698	266941.64	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267918.7	267947.04	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268137	267303.13	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267535.4	267966.24	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267336.8	266893.09	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267708.9	266012.65	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268018.2	267665.27	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267989.8	267333.18	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268239.7	267209.67	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4269135.1	265349.28	2	2	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267273.3	266795.9	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268083.1	267425.44	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268045.8	267477.39	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267448	266236.75	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268867.5	265449.31	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267444.8	266219.4	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267757.6	266017.12	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268588.6	265772.24	3	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268073.8	265952.57	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267572.2	267920.85	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267322.2	266594.61	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268334.9	265831.94	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268825.8	265496.72	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268671.1	265687.47	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267381.4	266559.71	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267399	266405.75	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268009.2	267404.52	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267981.2	267835.84	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267361	266590.79	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267947.8	267678.69	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267683.4	268028	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268705.5	265640.87	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267657.6	266022.68	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268283.1	265846.5	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267851.4	267953.35	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268209.5	267258.96	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268063.9	267315.26	1	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4269203.3	265331.15	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268132.9	265918.51	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268100.2	265930.53	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268019	265970.32	3	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267421.1	266347.55	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268789.5	265536.51	2	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266717.6	270784.3	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266363.2	270979.53	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267074	269242.52	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266868.3	270229.34	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267582.1	267928.5	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267957.4	266857.02	2	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267608.1	266966.56	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266861	270295.63	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267668.8	268021.28	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267250.3	266716.8	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267554.1	268846.05	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267610.4	268464.25	2	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267233.6	266630.76	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4266861.6	270378.63	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268050.8	266955.86	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268060.3	267725.45	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267298.6	268487.23	1	3	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267764.5	267997.62	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267343.5	268456.57	2	4	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267335	266900.21	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4268119.7	267108.97	1	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267676	266964.34	3	5	EP
East Portal Road	Melilotus officinale	Yellow sweetclover	FALSE		4267426.9	268409.07	1	3	EP
East Portal Road	Salsola australis	Russian-thistle	FALSE		4268634.3	265735.3	1	2	EP
East Portal Road	Salsola australis	Russian-thistle	FALSE		4267858.8	266028.83	1	3	EP
East Portal Road	Ulmus pumila	Siberian elm	FALSE	Seedling(s)	4266967.5	269887.77	3	1	EP
East Portal Road	Ulmus pumila	Siberian elm	FALSE	Sapling(s)	4267658.3	268758.44	4	2	EP
East Portal Road	Ulmus pumila	Siberian elm	FALSE	Mature Tree(s)	4267544.4	268902.75	4	4	EP
East Portal Road	Ulmus pumila	Siberian elm	FALSE	Sapling(s)	4267635	268873.48	4	2	EP
East Portal Rd to Campground	Verbascum thapsus	Common mullein	FALSE		4267428.2	268999.75	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268141.8	265915.4	5	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267931.6	267870.23	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266427.5	270977.94	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267965.7	267618.04	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4269125.7	265349.66	5	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267238.8	266644.15	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268087	267310.81	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267915	266008.71	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267342.1	266905.09	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268079.5	267469.67	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268018.5	267497.66	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267966.8	267339.78	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268227.6	267254.08	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268037.1	267486.93	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267996.5	265980.81	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267987.9	267673.71	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268066.7	265954.12	5	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267657	268879.74	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266858.4	270354.4	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267569	268093.37	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267661.5	268090.53	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267531.3	268256.17	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266539.6	270966.87	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267541.8	268200.82	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266939.4	269990.65	3	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267606.7	268057.6	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267577.3	268804.35	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267488.4	268929.45	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267614.7	268652.46	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266983.6	269823.99	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266912.1	270092.91	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266732.8	270729.72	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266987	269475.37	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267656.5	268773.58	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267698.9	268840.87	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266602.8	270949.92	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266698.6	270844.21	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266758.4	270670.64	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267101.7	269216.88	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267362.4	268961.92	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267755.3	267999.05	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267563.9	268451.47	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268091.5	267420.77	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267521.3	266944.4	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267262.1	268986.87	4	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267231.5	266667.42	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267528.2	268911.36	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267606.8	268024.45	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267387.7	266440.68	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268050.5	267779.31	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267278.1	266829.58	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267614	267942.73	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268754.7	265578.56	5	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268053.1	267723.51	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267934.8	265994.51	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267286.8	266594.34	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267380.7	266911.28	5	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267882.4	266822.35	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267865.1	266020.67	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268168.3	267184.27	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267281.9	266599.69	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268125.6	267107.81	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267809.6	267979.09	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267448.3	266941.84	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268186.6	267270.98	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267999.3	266874.33	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267685.4	266950.25	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268320	265839.98	5	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267700.2	268033.39	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268056.1	267839.45	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267621.4	266963.6	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267493.3	266110.28	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268042	267660.23	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267929.9	267651.06	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267355.6	266588.39	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268958.4	265390.6	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266810.3	270514.2	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267351.2	268446.96	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266377.8	270978.93	2	4	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267649.2	268063.46	1	4	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266664.5	270903.31	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268053.4	265952.77	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267554.2	266049.9	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267547.4	267981.91	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268059.1	266954.72	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268159.7	267287.02	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267595	266040.26	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267770.6	266871.3	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267974.9	267680.53	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267391.3	266457.87	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267421	266338.8	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267388.6	266527.44	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267985.9	267600.55	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268035.6	267894.31	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267387.3	266562.53	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267995.5	267855.26	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267907.6	267947.09	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267402.7	266401.44	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267624.1	268825.3	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267538.3	267961.03	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267231.1	266648.62	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267242.6	266696.26	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267475.6	268489.45	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267386.9	268511.68	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268059.9	267875.1	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267584.9	268068.48	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268058.7	267758.89	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267640.9	267988.65	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267552.6	268450.41	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267946.4	267934.99	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267477.3	268391.24	3	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267557.2	266956.31	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266908.4	270070.43	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267289.9	268500.92	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267869.8	267956.04	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267727.1	268020.58	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266968.1	269919.44	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE	Sapling(s)	4267616.2	268838.84	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266996.3	269812.25	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE	Sapling(s)	4267566.5	268842.34	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267581.3	268561.83	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267544.1	268188.81	3	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267332.6	268467.89	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268159.3	267190.34	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267595.5	268485.65	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266881.3	270172.62	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267653.3	268750.64	3	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267683.2	268887.04	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267037.1	269296.23	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267556.8	268138.15	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267339	268542.89	1	3	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266809.3	270538.84	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266624.8	270945.5	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267269.6	268538.82	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266826.3	270438.65	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266852.7	270398.46	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267728.1	266920.69	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267441.6	268502.04	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267431	268421.41	4	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267640.2	268049.25	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267510	268478.4	1	4	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267378.8	266919.54	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267401.2	268491.72	2	4	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267312.6	268477.44	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267513.8	268310.22	2	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268029.8	266916.18	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267457	268402.12	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE	Sapling(s)	4267658.5	268894.09	3	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267538.7	268148.49	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267538.7	268245.14	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267393.2	268421.84	2	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266965.1	269899.83	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267299.6	268979.8	5	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266758.2	270644.45	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267369.1	268443.68	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267607.9	268008.16	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266987.5	269390.95	4	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266699.7	270857.92	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266993	269418.82	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266465.9	270969.89	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267158.7	269074.25	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268229.9	267260.09	1	5	EP

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267828.5	266831.48	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267631.4	268713.06	1	4	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267522	268314.2	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267014.3	269693.46	1	2	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267314.5	268545.92	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4268086.6	267036.47	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266984.7	269573.1	1	3	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267682.3	268084.19	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267255.3	266736.62	2	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267621.3	268659.24	4	1	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267951.6	267841.32	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4266876.9	270247.9	1	5	EP
East Portal Road	Verbascum thapsus	Common mullein	FALSE		4267986.6	266873.46	1	5	EP
Gunnison River 5	Arctium minus	Burdock	FALSE		4271473.3	266012.47	2	2	Gunnison
Gunnison River 6 left	Breea arvensis	Canada thistle	FALSE		4267837.3	269103.61	5	1	Gunnison
Gunnison River 6 left	Breea arvensis	Canada thistle	FALSE		4267889.7	269121.46	2	3	Gunnison
Gunnison River 6 left	Breea arvensis	Canada thistle	FALSE		4268146.8	269109.51	2	2	Gunnison
Gunnison River 6 left	Breea arvensis	Canada thistle	FALSE		4268076.2	269121.75	2	3	Gunnison
Gunnison River 6 left	Breea arvensis	Canada thistle	FALSE		4268285.7	269034.38	5	1	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4268199.6	269123.59	1	2	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4267990.3	269189.1	1	5	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4267849	269143.29	1	4	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4267912.9	269175.47	1	4	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4268274.7	269084.82	2	2	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4268100.4	269166.26	2	5	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4268365.9	268969.89	2	2	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4268322.4	269019	1	5	Gunnison
Gunnison River 6 right	Breea arvensis	Canada thistle	FALSE		4267763.5	269129.45	1	4	Gunnison
Gunnison River 1	Carduus nutans	Musk thistle	FALSE		4275295.2	257476.09	2	2	Gunnison
Gunnison River 5	Carduus nutans	Musk thistle	FALSE		4271596.5	265612.05	5	1	Gunnison
Gunnison River 5	Cirsium vulgare	Bull thistle	FALSE		4271523.7	265897.67	1	2	Gunnison

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Gunnison River 6 left	Cirsium vulgare	Bull thistle	TRUE		4268257.7	269052.31	5	1	Gunnison
Gunnison River 6 left	Cirsium vulgare	Bull thistle	TRUE		4268166.4	269097.07	5	1	Gunnison
Gunnison River 6 right	Cirsium vulgare	Bull thistle	FALSE		4268259.7	269087.3	3	2	Gunnison
Gunnison River 6 right	Cirsium vulgare	Bull thistle	FALSE		4267853.4	269169.05	2	2	Gunnison
Gunnison River 6 right	Cirsium vulgare	Bull thistle	FALSE		4267816.1	269133.22	1	2	Gunnison
Gunnison River 6 right	Cirsium vulgare	Bull thistle	FALSE		4268113.3	269152.55	2	2	Gunnison
Gunnison River 6 left	Linaria vulgaris	Butter-and-eggs	FALSE		4268131.6	269111.63	2	3	Gunnison
Gunnison River 6 left	Linaria vulgaris	Butter-and-eggs	FALSE		4268238.3	269061.09	2	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275292.7	257456.24	1	2	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275249.3	257630.3	2	2	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4274873.9	258118.05	1	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4274785.1	258230.74	2	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4274959.5	257976.11	1	2	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275356.5	257231.65	2	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275209.2	257673.09	2	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275261.3	257581.53	2	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275133.1	257789.41	5	1	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4275187.2	257730.52	1	3	Gunnison
Gunnison River 1	Melilotus officinale	Yellow sweetclover	FALSE		4274891.8	258048.07	1	3	Gunnison
Gunnison River 5	Melilotus officinale	Yellow sweetclover	FALSE		4271541.7	265670.82	1	3	Gunnison
Gunnison River 5	Melilotus officinale	Yellow sweetclover	FALSE		4271476.1	266020.87	5	1	Gunnison
Gunnison River 5	Melilotus officinale	Yellow sweetclover	FALSE		4275281.9	257376.96	2	2	Gunnison
Gunnison River 6 left	Melilotus officinale	Yellow sweetclover	FALSE		4267824.8	269082.92	1	2	Gunnison
Gunnison River 6 left	Melilotus officinale	Yellow sweetclover	FALSE		4267982	269140.59	1	2	Gunnison
Gunnison River 6 left	Melilotus officinale	Yellow sweetclover	FALSE		4267875.3	269115.32	2	2	Gunnison
Gunnison River 6 left	Melilotus officinale	Yellow sweetclover	FALSE		4268249.5	269057.51	1	3	Gunnison
Gunnison River 6 left	Melilotus officinale	Yellow sweetclover	FALSE		4268128.8	269095.84	1	2	Gunnison
Gunnison River 6 right	Melilotus officinale	Yellow sweetclover	FALSE		4267846.1	269148.92	1	2	Gunnison
Gunnison River 6 right	Melilotus officinale	Yellow sweetclover	FALSE		4268339.9	268984.47	5	1	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275297.8	257424.03	2	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275261.7	257577.83	5	4	Gunnison

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274871.6	258107.66	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275368.9	257229.74	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274783.9	258241.59	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274993	257943.46	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274872.4	258145.61	4	4	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275060.3	257903.59	3	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274833.5	258193.41	5	4	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275330	257271.57	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275155.8	257772.69	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274926.7	258026.11	3	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4274796.6	258232.15	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275121.9	257813.86	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275247.3	257634.93	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275020.4	257921.22	3	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275189.4	257725.97	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275304.9	257317.94	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275091.5	257873.35	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275284.4	257375.07	4	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275207.7	257680.76	5	3	Gunnison
Gunnison River 1	Phalaroides arundinacea	Reed canarygrass	FALSE		4275292.3	257501	4	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271548.9	265718.46	5	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271574.8	265400.96	4	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271442.5	266082.48	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271616.1	265586.85	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271487.3	265981.67	5	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271462.1	266046.07	5	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271523.7	265883.67	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271585.3	265483.25	5	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271498.5	265953.67	2	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271540.5	265788.46	5	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271613.3	265530.85	3	3	Gunnison

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271534.9	265841.66	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271375.6	266162.14	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271506.9	265920.07	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271581.9	265632.61	4	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271540.5	265754.86	5	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271358.7	266174.84	4	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271589.9	265327.98	3	3	Gunnison
Gunnison River 5	Phalaroides arundinacea	Reed canarygrass	FALSE		4271621.8	265294.93	4	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268310.9	269018.65	2	5	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4267770.8	269067.2	5	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268166.4	269100.95	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268076.3	269123.08	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4267812.1	269081.97	4	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268120.3	269101.07	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4267976.5	269140.85	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268200.2	269082.13	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268306.8	268998.91	5	1	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268030.5	269132.47	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4268271.1	269048.62	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4267919.7	269134.67	3	3	Gunnison
Gunnison River 6 left	Phalaroides arundinacea	Reed canarygrass	FALSE		4267874.1	269114.54	3	3	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4268395.5	268973.1	3	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4268285.8	269083.71	3	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4267777.4	269135.35	3	4	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4267931.5	269166.91	3	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4268057.8	269159.87	3	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4268170.4	269152.73	3	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4267830.1	269130.69	2	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4268012	269195.75	3	5	Gunnison
Gunnison River 6 right	Phalaroides arundinacea	Reed canarygrass	FALSE		4267859.1	269172.13	2	5	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275034	257903.96	5	1	Gunnison

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4274824.9	258212.31	5	1	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275089.4	257875.11	1	3	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4274916.5	258028.84	1	3	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4274774.1	258227.54	5	1	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275160.3	257770	2	2	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4274878.7	258066.28	1	3	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275234.9	257646.56	2	2	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275268.9	257580.86	2	2	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275289.3	257495.26	2	3	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4275351.5	257243.58	5	1	Gunnison
Gunnison River 1	Verbascum thapsus	Common mullein	FALSE		4274964.1	257969.93	1	2	Gunnison
Gunnison River 5	Verbascum thapsus	Common mullein	FALSE		4275281.4	257384.44	5	1	Gunnison
Gunnison River 5	Verbascum thapsus	Common mullein	FALSE		4271585.3	265452.44	1	3	Gunnison
Gunnison River 5	Verbascum thapsus	Common mullein	FALSE		4271390.4	266147.32	2	2	Gunnison
Gunnison River 6 left	Verbascum thapsus	Common mullein	FALSE		4268332.9	268987.17	1	5	Gunnison
Gunnison River 6 left	Verbascum thapsus	Common mullein	FALSE		4267780.2	269084.61	2	1	Gunnison
Gunnison River 6 left	Verbascum thapsus	Common mullein	FALSE		4267934.7	269141.03	5	1	Gunnison
Gunnison River 6 left	Verbascum thapsus	Common mullein	FALSE		4268126.2	269084.78	4	1	Gunnison
Gunnison River 6 right	Verbascum thapsus	Common mullein	FALSE		4268225.9	269099.43	1	3	Gunnison
Gunnison River 6 right	Verbascum thapsus	Common mullein	FALSE		4267996.3	269188.71	3	2	Gunnison
Gunnison River 6 right	Verbascum thapsus	Common mullein	FALSE		4267846.9	269156.46	1	3	Gunnison
Gunnison River 6 right	Verbascum thapsus	Common mullein	FALSE		4268102.8	269147.69	1	3	Gunnison
Gunnison River 6 right	Verbascum thapsus	Common mullein	FALSE		4267797.2	269134.24	1	3	Gunnison
Black Canyon Road	Acosta maculosa	Spotted knapweed	FALSE		4277189.2	268218.82	2	2	North Roads
Black Canyon Road	Acroptilon repens	Russian knapweed	FALSE		4276302.1	266527.77	3	2	North Roads
Black Canyon Road	Acroptilon repens	Russian knapweed	FALSE		4276606.5	266857	3	2	North Roads
Black Canyon Road	Acroptilon repens	Russian knapweed	FALSE		4275744.8	266201.92	3	1	North Roads
Black Canyon Road	Breea arvensis	Canada thistle	FALSE		4277260.9	268354.72	2	3	North Roads
Black Canyon Road	Breea arvensis	Canada thistle	FALSE		4275972.7	266309.16	3	1	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274310	265087.76	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274904.8	265607.85	3	1	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4277143.2	268131.19	2	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274852.2	265555.86	2	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276951.1	267670.17	2	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276966.8	267735.8	3	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275049.3	265773.13	2	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275754.9	266204.8	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275483.6	266027.93	3	1	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275901.9	266263.28	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274953	265677.74	1	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4277488.1	268760.08	2	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4277023	267877.63	2	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275435.8	265986.79	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276535.1	266738.92	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275606.3	266117.84	4	1	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274766.6	265513.3	3	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274691.4	265488.94	3	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274571.5	265394.91	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276811.1	267297.42	2	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274741.8	265510.41	3	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276140.4	266429.2	2	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275375.9	265941.67	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275704.4	266172.61	3	1	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275278.5	265911.11	1	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276984.5	267799.44	2	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276579.9	266814.68	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4277068.9	267972.7	2	5	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276488.5	266678.16	2	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274504.4	265322.86	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276774.9	267198.21	2	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276935.7	267609.54	2	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274618.2	265439.76	3	2	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275169.7	265853.86	4	1	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274386.4	265190.44	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276836.4	267369.98	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4277047.7	267926.28	1	2	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276695.3	267022.36	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275094.2	265801.22	2	1	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4276745.6	267137.65	1	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4274460.8	265266.82	1	4	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4277101.3	268038.01	2	3	North Roads
Black Canyon Road	Carduus nutans	Musk thistle	FALSE		4275962	266302.45	3	1	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4273429.3	265513.56	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4274196.9	265160.9	2	2	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4274276.5	264994.91	1	4	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4273937.6	265225.99	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4274008.4	265220.24	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4272091.3	266573.04	1	2	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4273304.2	264991.31	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4274255.9	265124.44	4	2	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4273670.9	265220.6	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4274359.7	264523.5	1	2	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4272202.3	266359.74	5	1	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4273828.8	265231.06	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4273579.8	265161.64	1	5	North Roads
North Rim Road	Carduus nutans	Musk thistle	FALSE		4274132.6	265176.94	1	5	North Roads
Black Canyon Road	Cirsium vulgare	Bull thistle	FALSE		4276812.5	267309.83	3	1	North Roads
Black Canyon Road	Cirsium vulgare	Bull thistle	FALSE		4277313.3	268458.17	4	1	North Roads
Black Canyon Road	Cyclachaena xanthifolia	Marsh-elder	FALSE		4276670.1	266970.45	3	2	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277567.6	268974.44	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275125.6	265826	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274520.9	265344.76	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274450	265254.56	2	5	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274767.9	265518.28	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274981	265702.3	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274487.1	265299.22	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274294	265069.41	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275237.6	265886.3	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274560.5	265386.49	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276763.3	267170.61	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276957.5	267697.69	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275996.7	266324.54	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277167.2	268173.84	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276805.2	267275.99	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274666.4	265468.65	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277191.5	268224.46	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276891.6	267524.08	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277137.7	268112.06	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276103.1	266397.78	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275075.4	265786.43	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274936.4	265645.21	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274889.5	265590.57	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275417.2	265971.77	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275624.1	266124.8	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276740.7	267111.86	1	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277059.1	267949.13	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276841	267400.03	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276825.1	267345.19	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277353.6	268526.36	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277593	269039.23	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277215.1	268268.96	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277545.7	268916.52	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277507.1	268805.69	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277457.6	268683.48	3	5	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277392.7	268580.04	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277298.8	268426.34	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276039.6	266360.55	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274605.9	265431.57	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276689.9	267008	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274375.6	265172.7	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275181.8	265861.05	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276524.1	266730.24	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276715.8	267060.67	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274416.1	265216.31	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276943.2	267640.1	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276558.9	266786.74	1	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275945.8	266291.17	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275363.2	265935.25	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276627.7	266894.36	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277273.5	268378.01	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276481.1	266648.71	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277030.3	267893.11	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276861.4	267458.53	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276597.1	266844.17	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275734.9	266191.58	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276381.4	266577.26	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276654.2	266957.06	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275711.7	266177.59	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275561.3	266083.16	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275025.1	265756.06	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276916.7	267570.89	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275765.9	266203.37	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277424.8	268627.95	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276251.4	266495.41	1	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276203.6	266464.54	1	5	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274825.5	265543.89	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275666.3	266154.82	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276155.5	266440.25	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275520.2	266052.68	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275474.3	266020.39	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277113.9	268065.39	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274714.9	265498.73	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275300	265907.7	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276783.9	267220.84	2	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277081.7	267998.84	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275819.9	266224.17	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276999.7	267832.06	3	4	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276307.9	266534.3	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277242.3	268319.37	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277484.8	268743.12	4	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277326	268478.4	3	4	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4277527.9	268863.46	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4274338.3	265123.04	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4275885.5	266251.65	3	5	North Roads
Black Canyon Road	Melilotus officinale	Yellow sweetclover	FALSE		4276424.7	266603.73	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274366.6	264352	1	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272074.6	265913.06	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272173.5	266278.09	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272345.1	265743.04	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272006.1	266656.22	2	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272844.1	265296.24	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271811.4	266630.47	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273440	265503.83	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272460.7	265503.34	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273004.3	265620.15	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273910.5	265228.78	1	5	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271931.6	266656.66	2	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272416.2	265597.27	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274274.8	264904.93	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274233	264164.28	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274326.2	264290.33	1	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274270.7	264963.19	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274367.3	264516.01	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274267	264202.84	1	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274291.8	264837.66	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273459.8	265372.25	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272178.4	266461.4	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274322.8	264698.43	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274333.5	264635.66	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274179.5	265164.64	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273106.3	265365.17	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272147.7	266174.25	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273099.1	265272.05	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272120.1	266530.01	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271389	266991.19	3	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271596.1	266855.65	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271585.1	266797.54	2	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272235.6	265751.96	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272193.3	266414.26	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272915	265644.96	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272552	265556.27	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273346	265197.48	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272083.4	265849.58	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273562.3	265129.37	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272986.8	265459.25	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271654.4	266683.97	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271576.7	266921.78	2	5	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272051.1	266618.61	2	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271515	266931.99	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271449.6	266933.83	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274084	265186.78	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272135.7	266128.89	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273760.4	265230.47	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273190.2	265446.54	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272109.5	266041.66	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272642.2	265614.83	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271715	266664.49	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271883.6	266632.81	2	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273499	265002.43	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272157.5	266214.59	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274026.6	265209.38	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271378.2	266938.92	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272403.8	265704.82	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271762.6	266647.67	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272154.9	266501.05	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273846.8	265229.27	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274267	265108.7	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273283.4	265091.24	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272195.5	266357.41	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273038.2	265194.72	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271573.8	266729.03	1	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274239.3	264104.97	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272097.3	266565.48	2	4	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274378.4	264462.51	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272095.5	265987.67	2	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272136.1	265814.37	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273473.1	265465.52	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272692.5	265617.24	1	5	North Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272785.3	265602.8	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272861.1	265617.83	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274379.8	264404.81	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271573.3	266893.06	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274283.1	265024.36	3	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274304.7	264776.27	1	5	North Roads
North Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4274354.4	264571.51	2	5	North Roads
Black Canyon Road	Salsola australis	Russian-thistle	FALSE		4274907.7	265623.24	2	3	North Roads
Black Canyon Road	Salsola australis	Russian-thistle	FALSE		4274823.7	265547.16	2	3	North Roads
Black Canyon Road	Salsola australis	Russian-thistle	FALSE		4274359.4	265155.88	3	4	North Roads
Black Canyon Road	Salsola australis	Russian-thistle	FALSE		4274322.6	265110.91	3	4	North Roads
Black Canyon Road	Salsola australis	Russian-thistle	FALSE		4274613.5	265438.04	1	2	North Roads
Black Canyon Road	Salsola australis	Russian-thistle	FALSE		4275160.5	265854.82	3	3	North Roads
North Rim Road	Salsola australis	Russian-thistle	FALSE		4274305.3	264751.46	1	3	North Roads
North Rim Road	Salsola australis	Russian-thistle	FALSE		4274268.4	264891.58	2	4	North Roads
North Rim Road	Salsola australis	Russian-thistle	FALSE		4274320.4	264684.34	1	3	North Roads
Black Canyon Road	Verbascum thapsus	Common mullein	FALSE		4274394.2	265197.72	3	1	North Roads
Red Rock Canyon	Acroptilon repens	Russian knapweed	FALSE		4272022.9	257386	2	3	RR
Red Rock Canyon	Acroptilon repens	Russian knapweed	FALSE		4272066.7	257209.68	2	4	RR
Red Rock Canyon	Acroptilon repens	Russian knapweed	FALSE		4271665.8	257690.49	2	3	RR
Red Rock Canyon	Acroptilon repens	Russian knapweed	FALSE		4271890.3	257485.89	2	3	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4274738.7	256881.7	1	1	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4274815.6	256907.3	3	2	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4272873.7	257156.19	5	1	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4273765.8	256923.17	2	3	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4274598.1	256864.68	2	2	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4275153.7	257122.66	2	2	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4273102	257135.4	2	2	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4275111.4	257083.28	1	2	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4273709.1	256938.67	3	2	RR
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4274958.5	256989.04	1	2	RR

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Red Rock Canyon	Arctium minus	Common burdock	FALSE		4274608.6	256864.12	5	1	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271386.7	258031.75	2	2	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271547.4	257825.15	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271752.4	257599.17	1	4	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272924.7	257137.04	4	2	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272070.5	257335.95	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271982.1	257417.29	1	3	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272093.5	257292.1	3	4	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271826.9	257521.29	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271355.2	258078.5	3	4	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272027.5	257377.97	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272682.6	257126.83	2	3	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271505.4	257866.44	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271859.6	257504.35	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271714.3	257655.79	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271780.9	257561.23	2	4	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271677.2	257691.11	1	4	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271629.9	257729.36	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271592	257775.74	2	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272609.5	257129.37	2	2	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271926.7	257461.44	3	5	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271444.5	257925.58	2	2	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4272071.7	257243.85	3	3	RR
Red Rock Canyon	Bassia sieversiana	Kochia	FALSE		4271413.6	257980.71	2	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273835.7	256891.4	3	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4272885.1	257152.14	3	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273140.8	257133.71	2	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273880.1	256853.48	3	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4272079.5	257328.43	3	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4271382.4	258037.62	3	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273244.9	257104.08	3	2	RR

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4274927.8	256971.58	2	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4271343.6	258093.29	4	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273691.9	256934.15	2	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4271805.5	257534.62	2	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273787.3	256909.96	4	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4275156.1	257125.58	3	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4273865.9	256868.69	4	3	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4272789.9	257156.48	3	2	RR
Red Rock Canyon	Breea arvensis	Canada thistle	FALSE		4275249.1	257186.44	2	2	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271360	258071.97	3	2	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4273841.2	256888.66	2	2	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4272762.8	257152.8	5	1	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4274528.3	256886.27	5	2	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4273724.2	256923.51	2	2	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4273871.4	256858.06	3	3	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4272843.8	257151.94	2	3	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271874.9	257500.45	2	4	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271323.8	258116.01	2	3	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271391.1	258026.66	2	3	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4272904.3	257146.73	2	3	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271421.9	257965.74	2	1	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271835.3	257515.04	2	4	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4272033.4	257368.28	3	3	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4272090.2	257301	5	1	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4271923.8	257465.89	3	4	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4275118.6	257088.71	5	1	RR
Red Rock Canyon	Carduus nutans	Musk thistle	FALSE		4273695.4	256946.05	5	1	RR
Red Rock Canyon	Cirsium vulgare	Bull thistle	FALSE		4273105.6	257137.37	3	3	RR
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4271878.5	257497.05	3	1	RR
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4272088.8	257305.08	4	4	RR
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4271835.3	257514.85	5	1	RR

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4271347.8	258086.43	5	1	RR
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4272692.3	257127.59	5	1	RR
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4272083.4	257259.91	3	5	RR
Red Rock Canyon	Cyclachaena xanthifolia	Marsh-elder	FALSE		4272067.3	257217.57	2	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4272093.5	257286.19	1	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4274820	256909.17	1	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271987.2	257412.45	2	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4275355	257219.89	1	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271333.6	258113.46	2	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4272917.3	257139.31	5	1	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4275328.7	257169.8	1	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4272067.6	257214.51	2	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271528	257847.13	5	1	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4274758.3	256880.92	1	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4274447.9	256898.93	1	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4275092.2	257064.48	1	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271363.7	258068.81	3	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271390.8	258021.7	3	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4272157.8	257102.62	2	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4274664.5	256831.69	1	2	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271850.2	257507.69	1	3	RR
Red Rock Canyon	Melilotus officinale	Yellow sweetclover	FALSE		4271420.6	257970.62	1	2	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272200.7	257094.62	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274789.6	256894.23	3	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275310.5	257174.32	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275349.5	257180.64	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272085.9	257315.66	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273869.9	256860.06	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272432.2	257090.78	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275174.7	257137.01	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275074.9	257051.09	5	3	RR

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275164.1	257130.64	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275141.8	257110.77	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275181.6	257142.6	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4271870.8	257502.15	3	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272705.8	257134.13	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272058.6	257346.1	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274550.8	256878.33	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275357	257214.11	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273149.3	257133.16	4	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273992.3	256808.18	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275043.2	257029.79	3	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272301	257074.67	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272649	257125.56	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4271367.2	258064.2	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273245	257110.01	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4271334.5	258101.25	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274059.3	256832.95	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4271789.5	257554.52	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272754.5	257148.15	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275168.8	257134.09	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273099.1	257162.45	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274748.9	256879.35	3	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274860.6	256930.84	3	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274822.6	256912.8	3	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275243.5	257194.3	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272878.8	257154.09	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272358	257081.04	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272138.5	257111.01	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4271397.3	258016.2	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274933.1	256974.23	4	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274990.2	257015.5	2	3	RR

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274439.3	256901.87	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274030.8	256818.94	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4271819.6	257522.37	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272814.6	257158.76	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272934	257130.44	4	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4275190.7	257172.81	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273680.2	256982.3	5	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273855	256875.66	4	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4274616.7	256889.4	4	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4272069.9	257195.71	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273202.1	257131.07	5	3	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4276210.6	257018.78	4	4	RR
Red Rock Canyon	Phalaroides arundinacea	Reed canarygrass	FALSE		4273733.5	256936.09	5	5	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271910.3	257481.82	1	4	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4272040.6	257359.5	1	5	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271997.3	257402.59	2	5	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271886.6	257493.73	1	4	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4272120.4	257157.54	2	3	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271947.3	257436.91	3	5	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4272065.9	257222.64	3	5	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4272093.4	257279.64	3	5	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271765.9	257576.6	1	4	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271407.4	257994.15	1	3	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4271374.7	258044.96	1	2	RR
Red Rock Canyon	Salsola australis	Russian-thistle	FALSE		4272075.5	257333.37	3	4	RR
Red Rock Canyon	Ulmus pumila	Siberian elm	FALSE	Sapling(s)	4272279.5	257062.05	5	1	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4271862.6	257502.21	5	1	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4275147	257114.65	1	3	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274482.5	256893.85	2	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274888.4	256942.74	2	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274541	256883.15	2	2	RR

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4275047.4	257032.44	2	3	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274518.4	256890.16	3	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274770	256885.62	3	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4275124.8	257094.86	1	3	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274846	256924.22	2	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4273806.3	256894.09	1	3	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274506.7	256893.11	3	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4275332.5	257167.12	5	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4275190.5	257171.3	3	2	RR
Red Rock Canyon	Verbascum thapsus	Common mullein	FALSE		4274605.3	256880.26	2	2	RR
South Rim Road	Acroptilon repens	Russian knapweed	FALSE		4268808.7	264029.57	2	2	South Roads
South Rim Road	Acroptilon repens	Russian knapweed	FALSE		4269232.9	264690.2	5	1	South Roads
South Rim Road	Acroptilon repens	Russian knapweed	FALSE		4268864.8	264114.82	3	3	South Roads
South Rim Road	Acroptilon repens	Russian knapweed	FALSE		4268814.7	264008.73	2	2	South Roads
South Rim Road	Acroptilon repens	Russian knapweed	FALSE		4270218.7	265596.22	2	3	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4270642.8	265154.67	3	1	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269160.8	264993.57	3	1	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269078.6	264473.54	2	3	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269026	264401.69	1	5	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269219.9	265541.69	2	3	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269226.3	264737.55	5	1	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4270262.2	265675.15	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269024	264424.56	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268758.7	263902.07	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268721.1	263740.78	2	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4272607.6	264176.55	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268849.3	264073.67	1	5	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268916.1	264205.54	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4273487.7	263302.94	4	1	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269250.8	264591.41	1	5	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268946.3	264252.01	1	5	South Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
South Rim Road	Breea arvensis	Canada thistle	TRUE		4269245.9	265564.26	2	4	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269157.3	264507.21	1	5	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269977.2	265546	2	3	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268847.7	264089.5	1	4	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269671	265467.24	2	3	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268968.1	264328.84	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4269165.7	264956.6	3	2	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4271194.9	264417.11	5	1	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268764.5	263882.89	2	5	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4270598.3	265447.52	3	1	South Roads
South Rim Road	Breea arvensis	Canada thistle	FALSE		4268995.5	264382.34	4	3	South Roads
South Rim Road	Cardaria sp.	whitetop	FALSE		4268704.6	263593.59	4	2	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4269417.5	265493.73	1	1	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4271440.8	264345.33	5	1	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4269398.7	265490.01	4	1	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4271473.3	264364.25	5	1	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4273026.4	262789.42	4	1	South Roads
South Rim Road	Carduus nutans	Musk thistle	TRUE		4269228.2	265541.13	2	2	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4269166.7	264960.99	5	1	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4269200.9	265536.6	1	2	South Roads
South Rim Road	Carduus nutans	Musk thistle	FALSE		4270743	264855.07	5	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269853.1	265526.56	3	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270650.1	265111.75	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271315.2	264340.99	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268824.1	264052.82	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269210.7	265052.8	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271386.4	264343.44	1	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271598.2	264410.77	3	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269117.1	264521.63	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269167.2	264939.15	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269227.6	264811.23	2	3	South Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269238	264814.01	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269132.2	264490.97	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271090.3	264492.31	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269170.3	264905.38	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269967.5	265554.17	3	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268707.4	263673.71	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269251.3	264641.4	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270755.6	264863.62	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270722.1	264992.34	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270586.5	265945.4	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269989.7	265550.45	2	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271464.1	264349.95	5	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270504.3	265591.64	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269217.7	265403.09	2	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269205.9	264557.56	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269283.6	265140.94	1	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268747.1	263839.65	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268938.9	264264.87	2	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269294.9	265136.33	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270442	265934.77	2	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269226.4	264700.96	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271459.9	264363.65	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270551.6	265953.27	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268721.6	263784.93	1	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268751.4	263870.37	1	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271018.3	264576.05	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268883.9	264142.14	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270543	265621.96	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270380.9	265898.78	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269274.3	265559	3	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272018.7	264711.34	2	1	South Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272586.9	264443.38	1	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268921.1	264193.5	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272558.8	264259.57	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270615.3	265693.18	1	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269803.2	265512.19	3	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269240.2	265060.55	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269227.7	264764.01	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272546.2	264301.82	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269298.1	265250.68	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272852.4	263952.7	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269572.2	265454.01	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269195.1	265510.37	2	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270289.8	265747.12	3	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269279.8	265299.22	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270340.7	265858.58	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271265.3	264365.3	1	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268717.1	263636.1	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269042.7	264426.59	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270633	265120.7	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268966.4	264298.03	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269233.8	264701.73	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270677.2	265058.99	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271964.8	264641.15	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269257.1	264607.72	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270385.7	265911.69	2	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270519.8	265543.48	2	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269046.9	264446.92	3	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270036.1	265571.67	5	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268977.5	264348.22	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269960.1	265542.89	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270493.4	265944.69	2	1	South Roads

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269881.7	265522.28	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270298.5	265796.72	2	4	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268826.4	264034.15	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269183.8	265438.39	5	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4271892.6	261385.12	1	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4268777.3	263959.96	2	5	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272716.4	264072.31	1	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272780.4	264009.3	2	3	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4272737.4	264035.6	1	2	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4273167.9	263594.7	5	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4269909.1	265538.34	3	1	South Roads
South Rim Road	Melilotus officinale	Yellow sweetclover	FALSE		4270708.3	265890.84	1	5	South Roads
South Rim Road	Onopordum acanthium	Scotch thistle	FALSE		4269270.6	265341.2	2	3	South Roads
South Rim Road	Onopordum acanthium	Scotch thistle	FALSE		4269103.3	264496.24	5	1	South Roads
South Rim Road	Salsola australis	Russian-thistle	FALSE		4269154.9	264967.2	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4271067.2	264510.24	1	2	South Roads
South Rim Road	Verbascum thapsus	Common mullein	TRUE		4269251.5	265556.19	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4269014.2	264390.39	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4271275.7	264357.17	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4272708	264076.92	3	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4272361.6	264573.72	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4272182.4	264561.47	2	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4269643.1	265449.01	2	2	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4272148.1	264751.4	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	TRUE		4269254.5	265567.69	5	1	South Roads
South Rim Road	Verbascum thapsus	Common mullein	FALSE		4273769.8	263535.24	5	1	South Roads
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276609.2	267684.88	3	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4277319.7	268542.12	3	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276917.5	268557.71	2	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276898.1	268738.64	1	3	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276850.5	268567.04	1	3	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276806.8	268476.55	1	3	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276904	268823.02	2	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276867.4	268617.87	1	3	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276789.2	268373.32	3	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276627	267769.57	1	3	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276770.4	268307.05	1	4	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4277068.1	268531.05	2	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276519.4	268116.36	1	4	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276819.9	268528.16	1	3	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276616.2	268122.11	2	4	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4277128.1	268517.69	3	1	
Closed road	Acosta maculosa	Spotted knapweed	FALSE		4276678.6	268132.66	2	2	
Corral Service Road	Acosta maculosa	Spotted knapweed	FALSE		4276963.4	268777.88	3	1	
Corral Service Road	Acosta maculosa	Spotted knapweed	FALSE		4277031.6	268639.48	1	2	
Corral Service Road	Acosta maculosa	Spotted knapweed	FALSE		4276861.8	268975.6	1	2	
Drainage 1	Acosta maculosa	Spotted knapweed	FALSE		4276139.7	269188.73	3	3	
Drainage 1	Acosta maculosa	Spotted knapweed	FALSE		4276183.4	269153.55	2	3	
Drainage 1	Acosta maculosa	Spotted knapweed	FALSE		4276384.1	269018.01	5	1	
Drainage 1	Acosta maculosa	Spotted knapweed	FALSE		4276892.3	268909.19	2	2	
Drainage 1	Acosta maculosa	Spotted knapweed	FALSE		4276382.4	269071.49	2	2	
Drainage 1	Acosta maculosa	Spotted knapweed	FALSE		4276074.9	269227.99	2	3	
Drainage 9	Acosta maculosa	Spotted knapweed	FALSE		4276442.6	267332.35	3	3	
Grizzly Gulch	Acosta maculosa	Spotted knapweed	FALSE		4276170.8	268698.4	2	2	
Grizzly Gulch	Acosta maculosa	Spotted knapweed	FALSE		4276918.2	268228.91	3	3	
Grizzly Gulch	Acosta maculosa	Spotted knapweed	FALSE		4276521.8	268638.81	3	1	
Grizzly Gulch	Acosta maculosa	Spotted knapweed	FALSE		4274805.6	268796.26	5	1	
Grizzly Gulch	Acosta maculosa	Spotted knapweed	FALSE		4276161.9	268696.96	5	1	
Grizzly Gulch	Acosta maculosa	Spotted knapweed	FALSE		4275397.2	268701.96	2	3	
Service Road 1	Acosta maculosa	Spotted knapweed	FALSE		4277245.4	267159.81	5	1	
Service Road 1	Acosta maculosa	Spotted knapweed	FALSE		4277531.2	268472.14	1	5	
Service Road 1	Acosta maculosa	Spotted knapweed	FALSE		4277533.2	268690.58	5	1	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Service Road 1	Acosta maculosa	Spotted knapweed	FALSE		4277545.6	268630.92	1	5	
Drainage 12	Acroptilon repens	Russian knapweed	FALSE		4276407.2	260575.62	3	3	
Service Road 2	Acroptilon repens	Russian knapweed	FALSE		4277710.2	266272.03	3	2	
Closed road	Breea arvensis	Canada thistle	FALSE		4276871.4	267718.02	3	2	
Deadhorse Trail	Breea arvensis	Canada thistle	FALSE		4271352.2	267837.68	5	1	
Drainage 1	Breea arvensis	Canada thistle	FALSE		4276399.8	269015.33	2	2	
Drainage 12	Breea arvensis	Canada thistle	FALSE		4276402.6	260587.58	3	3	
Drainage 9	Breea arvensis	Canada thistle	FALSE		4275184.4	267768.44	3	2	
Drainage 9	Breea arvensis	Canada thistle	FALSE		4275292.3	267797.84	4	1	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4274771.1	268812.32	3	3	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4274859.9	268775.67	2	3	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4274794.6	265619.29	1	3	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4274847.9	265643.43	1	3	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4274709.2	265558.22	3	3	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4275244	268714.71	4	1	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4275960.7	268670.01	2	2	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4275459.1	268703.8	2	2	
Grizzly Gulch	Breea arvensis	Canada thistle	FALSE		4276863.4	267600.55	3	2	
Service Road 1	Breea arvensis	Canada thistle	FALSE		4276094.1	265431.59	4	1	
Service Road 2	Breea arvensis	Canada thistle	FALSE		4277502.1	267484.07	3	2	
4WD Road 10	Carduus nutans	Musk thistle	FALSE		4274601.5	265858.33	1	2	
4WD Road 10	Carduus nutans	Musk thistle	FALSE		4274749	265772.2	2	4	
4WD Road 10	Carduus nutans	Musk thistle	FALSE		4274952.5	265695.06	1	5	
4WD Road 10	Carduus nutans	Musk thistle	FALSE		4274850.9	265737.1	4	1	
4WD Road 10	Carduus nutans	Musk thistle	FALSE		4274704.8	265805.21	2	4	
Closed road	Carduus nutans	Musk thistle	FALSE		4276524.9	267545.31	4	1	
Closed road	Carduus nutans	Musk thistle	FALSE		4276858	267715.75	1	3	
Closed road	Carduus nutans	Musk thistle	FALSE		4276571	267606.48	1	3	
Closed road	Carduus nutans	Musk thistle	FALSE		4276578	268110.49	3	1	
Closed road	Carduus nutans	Musk thistle	FALSE		4276929.7	267750.67	3	5	
Closed road	Carduus nutans	Musk thistle	FALSE		4276955.9	267771.59	1	5	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Closed road	Carduus nutans	Musk thistle	FALSE		4276499.9	268123.09	1	4	
Closed road	Carduus nutans	Musk thistle	FALSE		4276909.3	267740.42	2	4	
Closed road	Carduus nutans	Musk thistle	FALSE		4276812.2	267715.91	1	3	
Closed road	Carduus nutans	Musk thistle	FALSE		4276737.2	267410.08	5	1	
Corral Service Road	Carduus nutans	Musk thistle	FALSE		4277022.7	268663.79	1	4	
Corral Service Road	Carduus nutans	Musk thistle	FALSE		4276989.6	268745.56	1	4	
Deadhorse Trail	Carduus nutans	Musk thistle	FALSE		4271080.3	267823.61	3	2	
Deadhorse Trail	Carduus nutans	Musk thistle	FALSE		4269704.3	268691.5	5	1	
Deadhorse Trail	Carduus nutans	Musk thistle	FALSE		4271319.9	267848.53	3	2	
Deadhorse Trail	Carduus nutans	Musk thistle	FALSE		4270397.6	267977.24	5	1	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276108.9	269209.89	1	4	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276388.8	269013.74	2	2	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276027.2	269364.22	1	4	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276385.6	269097.14	2	3	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4277309.2	268982.89	2	2	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276260.2	269109.28	1	3	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276209.4	269131.6	1	5	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276683.1	268989.2	1	2	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276318.7	269102.94	1	3	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276152.1	269179.69	1	3	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276786.8	268937.42	5	1	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276057.1	269301.73	1	5	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276959	268924.86	5	1	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276063.3	269248.53	1	4	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4275989	269413.48	1	4	
Drainage 1	Carduus nutans	Musk thistle	FALSE		4276727.2	268950.4	2	2	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276449	261021.44	2	2	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276293.9	260400.42	1	2	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276363.9	260502.39	5	1	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4275783.7	259977.83	2	3	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276012.4	260267.53	2	3	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276407	260604.53	4	4	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276440.9	260652.89	2	4	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4275948.6	260157.87	2	3	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4276471.8	260947.3	1	2	
Drainage 12	Carduus nutans	Musk thistle	FALSE		4272538.6	257097.92	1	2	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4274198.4	267239.51	5	1	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275452.7	267149.56	2	2	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4274920.7	267245.82	5	1	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275086.1	267255.53	3	1	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275558.4	267071.23	5	1	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275408.7	267185.07	3	2	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275359.5	267217.4	3	2	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275257	267234.08	3	2	
Drainage 14	Carduus nutans	Musk thistle	FALSE		4275016	267241.63	5	1	
Drainage 15	Carduus nutans	Musk thistle	FALSE		4277824.1	258418.72	2	3	
Drainage 15	Carduus nutans	Musk thistle	FALSE		4277908	258429.99	2	2	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4275276.6	267790.42	2	3	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276447.7	266891.41	3	4	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276022.4	267675.43	5	1	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276436.3	267349.34	3	2	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276423	267428.06	2	2	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276083.1	267639.79	5	1	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276177.4	267623.78	2	2	
Drainage 9	Carduus nutans	Musk thistle	FALSE		4276434.9	266813.56	5	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276906.8	267684.95	2	5	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276879.2	267631.23	2	5	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274619.8	265481.78	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275730.9	266237.93	5	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275955.6	268659.08	5	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276405.7	268656.74	5	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276097.1	268692.09	5	1	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275430.7	268703.65	1	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274380.2	265258.87	1	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275959.3	266371.71	2	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276453.8	266718.25	3	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275291.2	268705.95	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274331.9	265202.79	2	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276322.5	268676.78	2	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275180.9	268708.7	2	5	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275575.2	268696.64	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276263.3	268696.34	1	2	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274853.7	265647.23	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276596.1	268666.98	1	2	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274841	268779.91	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275087.6	268717.85	1	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276027.5	268680.35	1	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274990	265760.82	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275358.9	268706.26	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276950.6	267808.21	2	5	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275253.9	268712.74	2	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274720.5	265546.41	3	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274155.1	265020.49	2	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276261.9	266582.39	3	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274803.9	265620.98	2	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274467	265348.58	5	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275625	268693.93	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276514.8	268643.97	1	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275021.7	268726.51	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274962	268751.36	1	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275908.3	266337.05	2	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275860.7	266287.37	1	2	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275496.2	268703.25	1	3	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276514.3	266818.38	3	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4275879.3	268657.38	5	1	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274671	265519.05	2	3	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276012.8	266411.15	2	2	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276954.6	267836.65	1	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276931.8	267789.23	1	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4276572.5	266935.42	3	4	
Grizzly Gulch	Carduus nutans	Musk thistle	FALSE		4274761.9	265581	3	5	
Gunnison Route	Carduus nutans	Musk thistle	FALSE		4270803.5	265843.34	5	1	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4276087.6	265199.35	5	1	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4276097.6	265346.09	2	2	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4276093.9	265264.29	5	1	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4277223.3	267193.11	5	1	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4276802.6	266323.32	2	2	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4276083	265513.7	5	1	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4277269.4	267103.77	3	3	
Service Road 1	Carduus nutans	Musk thistle	FALSE		4277326.9	267814.98	5	1	
Service Road 2	Carduus nutans	Musk thistle	FALSE		4277504.5	267476	2	2	
Service Road 2	Carduus nutans	Musk thistle	FALSE		4277446.9	267561.78	5	1	
Service Road 2	Carduus nutans	Musk thistle	FALSE		4277698.8	266449.21	3	2	
Grizzly Gulch	Cirsium vulgare	Bull thistle	FALSE		4275820.6	266297.83	5	1	
Deadhorse Trail	Leucanthemum vulgare	Oxeye daisy	FALSE		4271708.5	267296.54	3	2	
Service Road 2	Leucanthemum vulgare	Oxeye daisy	FALSE		4277700.7	266518.25	5	1	
4WD Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277837.7	266633.55	5	1	
Closed road	Melilotus officinale	Yellow sweetclover	FALSE		4277331.4	268541.2	1	4	
Closed road	Melilotus officinale	Yellow sweetclover	FALSE		4276975.1	267767.92	3	5	
Closed road	Melilotus officinale	Yellow sweetclover	FALSE		4276906.5	268552.52	3	1	
Corral Service Road	Melilotus officinale	Yellow sweetclover	FALSE		4276877.7	268949.16	3	3	
Corral Service Road	Melilotus officinale	Yellow sweetclover	FALSE		4276897.1	268890.76	2	1	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271705.1	267303.1	1	5	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4270721.8	267765.86	3	2	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271700.5	266823.52	2	5	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271615.1	267761.88	2	5	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271352	267837.13	2	5	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271447.4	267799.39	1	5	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271728	267072.66	5	1	
Deadhorse Trail	Melilotus officinale	Yellow sweetclover	FALSE		4271666.5	267593.62	3	2	
Drainage 12	Melilotus officinale	Yellow sweetclover	FALSE		4276477.6	260719.48	1	3	
Drainage 12	Melilotus officinale	Yellow sweetclover	FALSE		4275704.7	259894.5	5	1	
Drainage 9	Melilotus officinale	Yellow sweetclover	FALSE		4276443.3	267314.88	3	2	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4274127.1	264996.24	3	5	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4274088	264966.13	3	5	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4273998.3	264814.68	2	4	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4274168.6	265047.54	2	5	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4274062.8	264920.04	2	5	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4276903.1	267663.02	3	5	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4274197.1	265096.58	3	5	
Grizzly Gulch	Melilotus officinale	Yellow sweetclover	FALSE		4276868.6	267611.66	3	5	
Pulpit Rock Trails	Melilotus officinale	Yellow sweetclover	FALSE		4271987.3	264739.61	5	1	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277331.3	268028.88	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277526.3	268724.62	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276094.3	265274.06	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277284.4	267063.66	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276520.3	266020.28	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277237.1	267178.34	2	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277534.2	268483.24	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277162.6	267298.95	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277149.1	266705.31	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276162.7	265624.13	2	3	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277199.5	266788.93	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277104.4	266613.53	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276578.2	266116.13	1	5	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276089.4	265204.34	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276740.6	266259.48	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277318	267834.38	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277254.9	267139.42	3	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277553.6	268566.08	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277205.4	267212.44	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277390	268133.14	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276098.3	265309.88	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276858.7	266373.73	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276098.9	265090.87	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276804.1	266325.32	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276088.3	265542.52	3	3	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276896.9	266420.46	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277463.8	268321.66	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276646.1	266186.34	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276952.3	266454.64	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277066.9	266563.13	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277247.6	267581.44	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277240.3	266904.08	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277417	268207.49	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276088.3	265482.28	2	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277324.2	267687.1	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276107.1	265019.11	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276459.5	265954.79	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4276362.9	265846.84	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277022.7	266518.34	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277507.9	268411.39	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277286.8	267001.74	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277263	266942.33	1	5	
Service Road 1	Melilotus officinale	Yellow sweetclover	FALSE		4277294.3	267911.33	3	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277470	267524.87	1	5	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277359	267724.04	1	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277684.9	267000.96	2	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277338.7	267752.97	1	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277691.6	266801.66	1	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277697	266687.21	3	2	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277667.7	267188.32	1	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277713.8	266252.13	5	1	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277419.8	267630.17	1	5	
Service Road 2	Melilotus officinale	Yellow sweetclover	FALSE		4277610.5	267289.77	2	5	
Grizzly Gulch	Phalaroides arundinacea	Reed canarygrass	FALSE		4274029.8	264864	2	3	
Grizzly Gulch	Salsola australis	Russian-thistle	FALSE		4274320.4	265186.09	3	4	
Drainage 15	Tamarix sp.	tamarisk	FALSE	Sapling(s)	4276377	258062.29	5	1	
Closed road	Verbascum thapsus	Common mullein	FALSE		4276526.8	267548.92	5	1	
Corral Service Road	Verbascum thapsus	Common mullein	FALSE		4276893.2	268900.77	3	1	
Deadhorse Trail	Verbascum thapsus	Common mullein	FALSE		4271382.9	267832.04	3	2	
Drainage 12	Verbascum thapsus	Common mullein	FALSE		4275540.3	259695.12	2	2	
Drainage 12	Verbascum thapsus	Common mullein	FALSE		4275416.4	259563.24	2	3	
Drainage 12	Verbascum thapsus	Common mullein	FALSE		4275429	259622.47	5	1	
Drainage 12	Verbascum thapsus	Common mullein	FALSE		4275302.6	259433.99	1	3	
Drainage 12	Verbascum thapsus	Common mullein	FALSE		4275350	259472.85	2	3	
Drainage 12	Verbascum thapsus	Common mullein	FALSE		4275386.2	259511.77	2	3	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276612.2	258238.73	2	2	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276436.5	258134.77	2	3	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4277707	258414.88	2	3	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276773.7	258254.12	5	1	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276525.8	258209.53	2	3	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4277465.6	258416.71	2	2	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276663.3	258251.6	2	3	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4277640.6	258425.17	2	2	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276398.1	258103.9	2	2	
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276473.1	258171.03	2	3	

Appendix A. Exotic plant patches detected on monitoring routes at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Species	Master_Common_Name	Pulled	Growth_Stage	N_Coord	E_Coord	Cover_Class	Size_Class	Area
Drainage 15	Verbascum thapsus	Common mullein	FALSE		4276957.3	258257.24	2	2	
Grizzly Gulch	Verbascum thapsus	Common mullein	FALSE		4273974.8	264791.15	3	1	
Grizzly Gulch	Verbascum thapsus	Common mullein	FALSE		4274853.8	268779.77	3	2	
Grizzly Gulch	Verbascum thapsus	Common mullein	FALSE		4274033.1	264871.92	1	5	
Grizzly Gulch	Verbascum thapsus	Common mullein	FALSE		4275106	268713.86	3	2	
Grizzly Gulch	Verbascum thapsus	Common mullein	FALSE		4274057.6	264904.45	1	5	
Grizzly Gulch	Verbascum thapsus	Common mullein	FALSE		4274084.9	264952.58	2	3	
Gunnison Route	Verbascum thapsus	Common mullein	FALSE		4271512.3	265553.26	2	2	
Service Road 1	Verbascum thapsus	Common mullein	FALSE		4276097.8	265284.26	3	2	

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
4WD Road 1	3	1	Melilotus officinale	Yellow sweetclover	0.1666667	266801.42	4277215.8	N. Roads
Black Canyon Road	5	3	Anisantha tectorum	Cheatgrass	0.3333333	265208.1	4274404.6	N. Roads
Black Canyon Road	6	4	Anisantha tectorum	Cheatgrass	10.166667	265522.02	4274780.4	N. Roads
Black Canyon Road	7	5	Anisantha tectorum	Cheatgrass	0.1666667	265843.96	4275154.1	N. Roads
Black Canyon Road	8	6	Anisantha tectorum	Cheatgrass	6.6666667	266100.2	4275583	N. Roads
Black Canyon Road	9	7	Anisantha tectorum	Cheatgrass	0.3333333	266341.39	4276017.6	N. Roads
Black Canyon Road	10	8	Anisantha tectorum	Cheatgrass	2.6666667	266608.33	4276436.9	N. Roads
Black Canyon Road	11	9	Anisantha tectorum	Cheatgrass	2	267037.7	4276694.4	N. Roads
Black Canyon Road	12	10	Anisantha tectorum	Cheatgrass	0.3333333	267498.85	4276886.6	N. Roads
Black Canyon Road	13	11	Anisantha tectorum	Cheatgrass	0.1666667	267964.72	4277063	N. Roads
Black Canyon Road	15	13	Anisantha tectorum	Cheatgrass	1	268849.26	4277522.2	N. Roads
Black Canyon Road	5		Melilotus officinale	Yellow sweetclover	10	265208.1	4274404.6	N. Roads
Black Canyon Road	6		Melilotus officinale	Yellow sweetclover	1	265522.02	4274780.4	N. Roads
Black Canyon Road	7		Melilotus officinale	Yellow sweetclover	10	265843.96	4275154.1	N. Roads
Black Canyon Road	12		Melilotus officinale	Yellow sweetclover	0.3333333	267498.85	4276886.6	N. Roads
Black Canyon Road	13		Melilotus officinale	Yellow sweetclover	16.666667	267964.72	4277063	N. Roads
Black Canyon Road	14	12	Melilotus officinale	Yellow sweetclover	0.1666667	268405.56	4277294.8	N. Roads
Black Canyon Road	15		Melilotus officinale	Yellow sweetclover	23.333333	268849.26	4277522.2	N. Roads
Closed road	33	25	Acosta maculosa	Spotted knapweed	0.6666667	268116.7	4276528.1	N. Roads
Closed road	27	21	Anisantha tectorum	Cheatgrass	0.1666667	268521.71	4277191.4	N. Roads
Closed road	29	22	Anisantha tectorum	Cheatgrass	0.1666667	267957.78	4276672.9	N. Roads
Closed road	30	23	Anisantha tectorum	Cheatgrass	0.1666667	267499.55	4276511.3	N. Roads
Corral Service Road	31	24	Anisantha tectorum	Cheatgrass	0.3333333	268884.23	4276901.6	N. Roads
Deadhorse Trail	98		Anisantha tectorum	Cheatgrass	1.1666667	267849.88	4271312.7	
Drainage 1	388		Anisantha tectorum	Cheatgrass	0.1666667	269014.57	4276396.8	
Drainage 1	390		Anisantha tectorum	Cheatgrass	1.5	269010.57	4277356	
Drainage 12	374		Anisantha tectorum	Cheatgrass	0.1666667	260152.27	4275945.3	
Drainage 15	386		Anisantha tectorum	Cheatgrass	0.1666667	258252.8	4276643.4	
Drainage 9	370		Anisantha tectorum	Cheatgrass	0.1666667	267532.73	4276287.3	
East Portal Rd to Campground	52	1	Anisantha tectorum	Cheatgrass	0.5	269041.37	4267540	S. Roads

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
East Portal Road	53	2	Anisantha tectorum	Cheatgrass	0.1666667	270970.94	4266485.7	S. Roads
East Portal Road	54	3	Anisantha tectorum	Cheatgrass	0.1666667	270618.4	4266766.7	S. Roads
East Portal Road	56	5	Anisantha tectorum	Cheatgrass	0.1666667	269654.27	4267011	S. Roads
East Portal Road	59	7	Anisantha tectorum	Cheatgrass	0.3333333	268724.65	4267635.6	S. Roads
East Portal Road	60	8	Anisantha tectorum	Cheatgrass	0.5	268496.46	4267403.4	S. Roads
East Portal Road	62	9	Anisantha tectorum	Cheatgrass	0.1666667	267999.94	4267581.4	S. Roads
East Portal Road	63	10	Anisantha tectorum	Cheatgrass	0.1666667	267945.63	4267896.7	S. Roads
East Portal Road	64	11	Anisantha tectorum	Cheatgrass	0.6666667	267673.09	4268054.8	S. Roads
East Portal Road	66	13	Anisantha tectorum	Cheatgrass	0.1666667	267203.44	4268231.9	S. Roads
East Portal Road	68	15	Anisantha tectorum	Cheatgrass	0.3333333	266954.55	4267491.2	S. Roads
East Portal Road	70	17	Anisantha tectorum	Cheatgrass	0.1666667	266213.58	4267446.9	S. Roads
East Portal Road	72	19	Anisantha tectorum	Cheatgrass	0.1666667	265835.14	4268298.5	S. Roads
East Portal Road	597	43	Anisantha tectorum	Cheatgrass	0.1666667	270996.34	4266475.7	S. Roads
East Portal Road	598	44	Anisantha tectorum	Cheatgrass	0.1666667	270625.39	4266769.2	S. Roads
East Portal Road	599	45	Anisantha tectorum	Cheatgrass	0.1666667	270146.83	4266895	S. Roads
East Portal Road	600	46	Anisantha tectorum	Cheatgrass	0.1666667	269674.39	4267018.5	S. Roads
East Portal Road	601	47	Anisantha tectorum	Cheatgrass	0.1666667	269207.62	4267099.8	S. Roads
East Portal Road	602	48	Anisantha tectorum	Cheatgrass	0.1666667	268944.68	4267478.7	S. Roads
East Portal Road	603	49	Anisantha tectorum	Cheatgrass	0.3333333	268742.47	4267656.7	S. Roads
East Portal Road	604	50	Anisantha tectorum	Cheatgrass	0.3333333	268492.89	4267424.1	S. Roads
East Portal Road	605	51	Anisantha tectorum	Cheatgrass	0.3333333	268326.71	4267515.2	S. Roads
East Portal Road	607	53	Anisantha tectorum	Cheatgrass	0.5	267953.97	4267884.5	S. Roads
East Portal Road	608	54	Anisantha tectorum	Cheatgrass	33.5	267693.58	4268068.7	S. Roads
East Portal Road	609	55	Anisantha tectorum	Cheatgrass	0.1666667	267403.34	4268068.9	S. Roads
East Portal Road	610	56	Anisantha tectorum	Cheatgrass	0.1666667	267197.15	4268236.5	S. Roads
East Portal Road	612	57	Anisantha tectorum	Cheatgrass	0.1666667	266943.74	4267493.5	S. Roads
East Portal Road	614	59	Anisantha tectorum	Cheatgrass	0.1666667	266202.89	4267456.1	S. Roads
East Portal Road	615	60	Anisantha tectorum	Cheatgrass	0.1666667	266026.71	4267864.3	S. Roads
East Portal Road	616	61	Anisantha tectorum	Cheatgrass	0.1666667	265837.41	4268323.8	S. Roads
East Portal Road	63		Breea arvensis	Canada thistle	0.1666667	267945.63	4267896.7	S. Roads

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
East Portal Road	614		Breea arvensis	Canada thistle	0.3333333	266202.89	4267456.1	S. Roads
East Portal Road	64		Carduus nutans	Musk thistle	0.3333333	267673.09	4268054.8	S. Roads
East Portal Road	66		Carduus nutans	Musk thistle	0.1666667	267203.44	4268231.9	S. Roads
East Portal Road	55	4	Melilotus officinale	Yellow sweetclover	0.1666667	270132.49	4266891.8	S. Roads
East Portal Road	62		Melilotus officinale	Yellow sweetclover	0.3333333	267999.94	4267581.4	S. Roads
East Portal Road	65	12	Melilotus officinale	Yellow sweetclover	0.1666667	267408.85	4268046.5	S. Roads
East Portal Road	67	14	Melilotus officinale	Yellow sweetclover	0.1666667	266851.13	4267937.1	S. Roads
East Portal Road	68		Melilotus officinale	Yellow sweetclover	0.3333333	266954.55	4267491.2	S. Roads
East Portal Road	69	16	Melilotus officinale	Yellow sweetclover	3.3333333	266610.55	4267246.8	S. Roads
East Portal Road	70		Melilotus officinale	Yellow sweetclover	0.6666667	266213.58	4267446.9	S. Roads
East Portal Road	71	18	Melilotus officinale	Yellow sweetclover	1.8333333	266025.42	4267835.8	S. Roads
East Portal Road	72		Melilotus officinale	Yellow sweetclover	10	265835.14	4268298.5	S. Roads
East Portal Road	597		Melilotus officinale	Yellow sweetclover	0.3333333	270996.34	4266475.7	S. Roads
East Portal Road	599		Melilotus officinale	Yellow sweetclover	0.5	270146.83	4266895	S. Roads
East Portal Road	601		Melilotus officinale	Yellow sweetclover	0.1666667	269207.62	4267099.8	S. Roads
East Portal Road	606	52	Melilotus officinale	Yellow sweetclover	0.1666667	268004.43	4267603.6	S. Roads
East Portal Road	607		Melilotus officinale	Yellow sweetclover	0.3333333	267953.97	4267884.5	S. Roads
East Portal Road	612		Melilotus officinale	Yellow sweetclover	0.5	266943.74	4267493.5	S. Roads
East Portal Road	613	58	Melilotus officinale	Yellow sweetclover	10	266606.15	4267274.3	S. Roads
East Portal Road	614		Melilotus officinale	Yellow sweetclover	2.6666667	266202.89	4267456.1	S. Roads
East Portal Road	615		Melilotus officinale	Yellow sweetclover	0.3333333	266026.71	4267864.3	S. Roads
East Portal Road	616		Melilotus officinale	Yellow sweetclover	10	265837.41	4268323.8	S. Roads
East Portal Road	617	62	Melilotus officinale	Yellow sweetclover	10	265601.41	4268734.7	S. Roads
East Portal Road	618	63	Melilotus officinale	Yellow sweetclover	0.6666667	265349.43	4269142.2	S. Roads
East Portal Road	615		Salsola australis	Russian-thistle	0.1666667	266026.71	4267864.3	S. Roads
East Portal Road	53		Verbascum thapsus	Common mullein	0.1666667	270970.94	4266485.7	S. Roads
East Portal Road	55		Verbascum thapsus	Common mullein	0.1666667	270132.49	4266891.8	S. Roads
East Portal Road	58	6	Verbascum thapsus	Common mullein	0.3333333	268932.86	4267482.5	S. Roads
East Portal Road	60		Verbascum thapsus	Common mullein	0.3333333	268496.46	4267403.4	S. Roads
East Portal Road	64		Verbascum thapsus	Common mullein	1.6666667	267673.09	4268054.8	S. Roads

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
East Portal Road	66		Verbascum thapsus	Common mullein	0.6666667	267203.44	4268231.9	S. Roads
East Portal Road	68		Verbascum thapsus	Common mullein	0.6666667	266954.55	4267491.2	S. Roads
East Portal Road	597		Verbascum thapsus	Common mullein	1	270996.34	4266475.7	S. Roads
East Portal Road	603		Verbascum thapsus	Common mullein	0.3333333	268742.47	4267656.7	S. Roads
East Portal Road	605		Verbascum thapsus	Common mullein	0.3333333	268326.71	4267515.2	S. Roads
East Portal Road	609		Verbascum thapsus	Common mullein	0.1666667	267403.34	4268068.9	S. Roads
East Portal Road	612		Verbascum thapsus	Common mullein	1	266943.74	4267493.5	S. Roads
Grizzly Gulch	559		Anisantha tectorum	Cheatgrass	0.1666667	265617.09	4274787.8	
Grizzly Gulch	564		Anisantha tectorum	Cheatgrass	0.3333333	268686.53	4276046.5	
Grizzly Gulch	566		Anisantha tectorum	Cheatgrass	0.1666667	268317.9	4276835.3	
Grizzly Gulch	567		Anisantha tectorum	Cheatgrass	0.1666667	267950.91	4277012.2	
Grizzly Gulch	568		Anisantha tectorum	Cheatgrass	0.1666667	267494.04	4276818.4	
Grizzly Gulch	559		Carduus nutans	Musk thistle	5.6666667	265617.09	4274787.8	
Grizzly Gulch	562		Carduus nutans	Musk thistle	0.1666667	268722.98	4275051.1	
Grizzly Gulch	565		Carduus nutans	Musk thistle	0.1666667	268648.74	4276543.9	
Grizzly Gulch	561		Melilotus officinale	Yellow sweetclover	1.6666667	264934.71	4274070.4	
Gunnison River 1	410	5	Anisantha tectorum	Cheatgrass	0.1666667	258170.96	4274863.4	River
Gunnison River 1	412	7	Anisantha tectorum	Cheatgrass	0.3333333	257326.45	4275304.3	River
Gunnison River 1	410		Phalaroides arundinacea	Reed canarygrass	1.3333333	258170.96	4274863.4	River
Gunnison River 1	411	6	Phalaroides arundinacea	Reed canarygrass	33.333333	257782.09	4275141.4	River
Gunnison River 5	400	3	Anisantha tectorum	Cheatgrass	0.1666667	266125.94	4271407.6	River
Gunnison River 5	400		Phalaroides arundinacea	Reed canarygrass	0.6666667	266125.94	4271407.6	River
Gunnison River 5	401	4	Phalaroides arundinacea	Reed canarygrass	1.6666667	265663.14	4271578.5	River
Gunnison River 6 left	393	2	Melilotus officinale	Yellow sweetclover	0.3333333	269143.98	4267964.5	River
Gunnison River 6 left	393		Phalaroides arundinacea	Reed canarygrass	17	269143.98	4267964.5	River
Gunnison River 6 right	391	1	Breea arvensis	Canada thistle	0.1666667	269153.61	4267921.2	River
Gunnison River 6 right	391		Phalaroides arundinacea	Reed canarygrass	2	269153.61	4267921.2	River
North Rim Road	39	29	Anisantha tectorum	Cheatgrass	0.1666667	266089.52	4272125	N. Roads
North Rim Road	46	34	Anisantha tectorum	Cheatgrass	0.3333333	264953.65	4273452	N. Roads
North Rim Road	47	35	Anisantha tectorum	Cheatgrass	0.1666667	265231.71	4273816.4	N. Roads

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
North Rim Road	36	26	Melilotus officinale	Yellow sweetclover	16.666667	266972.62	4271415.9	N. Roads
North Rim Road	37	27	Melilotus officinale	Yellow sweetclover	6.6666667	266679.85	4271667.3	N. Roads
North Rim Road	38	28	Melilotus officinale	Yellow sweetclover	0.6666667	266554.92	4272109.2	N. Roads
North Rim Road	39		Melilotus officinale	Yellow sweetclover	0.6666667	266089.52	4272125	N. Roads
North Rim Road	41	30	Melilotus officinale	Yellow sweetclover	0.3333333	265582.01	4272573.5	N. Roads
North Rim Road	42	31	Melilotus officinale	Yellow sweetclover	1.6666667	265597.3	4273024.5	N. Roads
North Rim Road	44	32	Melilotus officinale	Yellow sweetclover	0.3333333	265463.24	4273229.6	N. Roads
North Rim Road	45	33	Melilotus officinale	Yellow sweetclover	0.1666667	265273.16	4273395.2	N. Roads
North Rim Road	48	36	Melilotus officinale	Yellow sweetclover	1	265095.2	4274276.1	N. Roads
North Rim Road	50	37	Melilotus officinale	Yellow sweetclover	26.666667	264154.76	4274230	N. Roads
North Vista Trail	80		Anisantha tectorum	Cheatgrass	0.1666667	263243.84	4274795.6	
Red Rock Canyon	441	1	Anisantha tectorum	Cheatgrass	0.6666667	257116.99	4272937.8	
Red Rock Canyon	442	2	Anisantha tectorum	Cheatgrass	0.3333333	257093.3	4272457.5	
Red Rock Canyon	443	3	Anisantha tectorum	Cheatgrass	1.8333333	257251.64	4272080.3	
Red Rock Canyon	444	4	Anisantha tectorum	Cheatgrass	1.3333333	257584.87	4271760.4	
Red Rock Canyon	445	5	Anisantha tectorum	Cheatgrass	1.1666667	257953.79	4271430.4	
Red Rock Canyon	446	6	Anisantha tectorum	Cheatgrass	0.6666667	257061.03	4273359.8	
Red Rock Canyon	447	7	Anisantha tectorum	Cheatgrass	26.666667	256928.02	4273728.2	
Red Rock Canyon	448	8	Anisantha tectorum	Cheatgrass	0.1666667	256914.31	4274241.9	
Red Rock Canyon	450	10	Anisantha tectorum	Cheatgrass	0.1666667	257019.27	4275011.8	
Red Rock Canyon	443		Bassia sieversiana	Kochia	0.6666667	257251.64	4272080.3	
Red Rock Canyon	444		Bassia sieversiana	Kochia	0.3333333	257584.87	4271760.4	
Red Rock Canyon	447		Carduus nutans	Musk thistle	1.6666667	256928.02	4273728.2	
Red Rock Canyon	443		Melilotus officinale	Yellow sweetclover	0.1666667	257251.64	4272080.3	
Red Rock Canyon	442		Phalaroides arundinacea	Reed canarygrass	13.333333	257093.3	4272457.5	
Red Rock Canyon	449	9	Phalaroides arundinacea	Reed canarygrass	6.6666667	256878.76	4274733.5	
Red Rock Canyon	450		Phalaroides arundinacea	Reed canarygrass	30	257019.27	4275011.8	
Red Rock Canyon	443		Salsola australis	Russian-thistle	1.8333333	257251.64	4272080.3	
Red Rock Canyon	444		Salsola australis	Russian-thistle	0.5	257584.87	4271760.4	
Service Road 1	22	17	Anisantha tectorum	Cheatgrass	0.1666667	266644.52	4277117.9	N. Roads

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
Service Road 1	25	19	Anisantha tectorum	Cheatgrass	0.3333333	267998.92	4277316.3	N. Roads
Service Road 1	23	18	Carduus nutans	Musk thistle	0.3333333	267103.86	4277269.5	N. Roads
Service Road 1	18	15	Melilotus officinale	Yellow sweetclover	0.6666667	265092.95	4276096.9	N. Roads
Service Road 1	21	16	Melilotus officinale	Yellow sweetclover	0.1666667	266291.83	4276772	N. Roads
Service Road 1	22		Melilotus officinale	Yellow sweetclover	0.1666667	266644.52	4277117.9	N. Roads
Service Road 1	23		Melilotus officinale	Yellow sweetclover	0.1666667	267103.86	4277269.5	N. Roads
Service Road 1	25		Melilotus officinale	Yellow sweetclover	0.6666667	267998.92	4277316.3	N. Roads
Service Road 1	26	20	Melilotus officinale	Yellow sweetclover	0.6666667	268448.58	4277520.8	N. Roads
Service Road 2	4	2	Anisantha tectorum	Cheatgrass	0.5	266412.66	4277704	N. Roads
Service Road 2	16	14	Anisantha tectorum	Cheatgrass	0.1666667	267604.09	4277430.6	N. Roads
South Rim Road	427	29	Anisantha tectorum	Cheatgrass	0.1666667	264749.77	4272031.8	S. Roads
South Rim Road	430	30	Anisantha tectorum	Cheatgrass	0.1666667	263990.02	4272806.9	S. Roads
South Rim Road	436	31	Anisantha tectorum	Cheatgrass	0.3333333	262458.07	4272917.2	S. Roads
South Rim Road	437	32	Anisantha tectorum	Cheatgrass	0.1666667	262033.89	4272666.5	S. Roads
South Rim Road	440	33	Anisantha tectorum	Cheatgrass	0.1666667	261260.28	4271858.9	S. Roads
South Rim Road	587	39	Anisantha tectorum	Cheatgrass	0.1666667	263896.73	4273065.6	S. Roads
South Rim Road	591	40	Anisantha tectorum	Cheatgrass	0.1666667	263008.15	4273241.1	S. Roads
South Rim Road	593	41	Anisantha tectorum	Cheatgrass	0.1666667	262180.16	4272777	S. Roads
South Rim Road	595	42	Anisantha tectorum	Cheatgrass	1.8333333	261712.03	4272134.6	S. Roads
South Rim Road	414	20	Breea arvensis	Canada thistle	0.6666667	264071.85	4268834.3	S. Roads
South Rim Road	570	34	Breea arvensis	Canada thistle	0.1666667	263810.23	4268739.2	S. Roads
South Rim Road	575	36	Breea arvensis	Canada thistle	0.1666667	265466.4	4269660	S. Roads
South Rim Road	580	37	Breea arvensis	Canada thistle	0.3333333	264872.36	4270735.6	S. Roads
South Rim Road	414		Melilotus officinale	Yellow sweetclover	0.6666667	264071.85	4268834.3	S. Roads
South Rim Road	415	21	Melilotus officinale	Yellow sweetclover	2	264481.13	4269092.3	S. Roads
South Rim Road	416	22	Melilotus officinale	Yellow sweetclover	1	264873.64	4269202.4	S. Roads
South Rim Road	417	23	Melilotus officinale	Yellow sweetclover	0.6666667	265305.87	4269277.2	S. Roads
South Rim Road	418	24	Melilotus officinale	Yellow sweetclover	0.3333333	265500.61	4269400.9	S. Roads
South Rim Road	420	25	Melilotus officinale	Yellow sweetclover	0.1666667	265748.73	4270283	S. Roads
South Rim Road	421	26	Melilotus officinale	Yellow sweetclover	0.1666667	265946.01	4270662.4	S. Roads

Appendix B. Exotic plant transect data detected at Black Canyon of the Gunnison NP, August 26–September 2, 2015, cont.

Plot_ID	Transect	Area	Species	Master_Common_Name	Cover_Average	E_Coord	N_Coord	Area
South Rim Road	422	27	Melilotus officinale	Yellow sweetclover	3.3333333	265573	4270509.1	S. Roads
South Rim Road	423	28	Melilotus officinale	Yellow sweetclover	3.3333333	265134.89	4270641.7	S. Roads
South Rim Road	570		Melilotus officinale	Yellow sweetclover	1.3333333	263810.23	4268739.2	S. Roads
South Rim Road	571	35	Melilotus officinale	Yellow sweetclover	0.6666667	264266.44	4268951	S. Roads
South Rim Road	582	38	Melilotus officinale	Yellow sweetclover	0.3333333	264354.05	4271471.1	S. Roads
Tomichi Route	451		Anisantha tectorum	Cheatgrass	0.3333333	265965.08	4270145.1	
Warner Point Nature Trail	91		Anisantha tectorum	Cheatgrass	0.5	260632.85	4271940.7	
Warner Point Nature Trail	92		Anisantha tectorum	Cheatgrass	0.1666667	261039.88	4271788.1	

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science
1201 Oak Ridge Drive, Suite 150
Fort Collins, Colorado 80525

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