



Invasive Exotic Plant Monitoring

2013

Importance

Invasive exotic plants are one of the most significant threats to natural resources in the national parks today. Exotic plants are a concern because they are able to reproduce prolifically, rapidly colonize new areas, displace native species, and alter ecosystem processes across multiple scales. If invasive exotic plants are discovered while their populations are still small, control efforts are likely to cost less and achieve higher success rates than after a species has become more widespread. Therefore, early detection of exotic plants is critical.

Long-term Monitoring

In order to provide early warning of new exotic threats, the Northern Colorado Plateau Network (NCPN) focuses its invasive-plant monitoring efforts on areas where invasive exotics are likely to first establish.

The network has implemented a multi-pronged approach to the early detection of exotic plants. First, NCPN or park staff experienced with a wide range of exotics survey established monitoring routes on a rotational basis to maximize both efficiency and ground coverage. Along those routes, staff establish plots that can be quickly surveyed for data that will enable us to make trend estimates over time. In addition, NCPN staff may dedicate approximately 25% of their time to inventories of areas that are of high management concern. Finally, the network has designed “monitoring lite,” a method by which park staff or volunteers with less knowledge of invasive species may collect data for use in NCPN databases and reporting.

The objectives of NCPN invasive plant monitoring are to:

1. Detect incipient populations and new introductions of invasive plant species; and
2. Determine status and trends of selected populations of invasive plants of management significance.

Management Applications

Information gathered from this monitoring will support a long-term, ecosystem-wide strategy for controlling invasive plant species and provide park managers with access to systematically collected information that enables them to be well-informed about the status of ecosystems and prioritize dedication of limited resources to invasive-plant control efforts. Staff from both the parks and Exotic Plant Management Teams use NCPN monitoring reports to guide control efforts.



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Bull thistle (*Cirsium vulgare*).

Monitoring Effort

In 2013, the NCPN monitored all routes at Colorado National Monument (NM), the Highway 25/Fremont River Corridor at Capitol Reef National Park (NP), and several trails at Zion NP. Scheduled work along the river corridor at Dinosaur NM was suspended due to the federal budget sequestration. Reports on work completed in 2012 are available at the [network website](#).

Current plans call for invasive exotics to be monitored at Black Canyon NP, Curecanti National Recreation Area, Capitol Reef NP, Fossil Butte NM, Golden Spike National Historic Site, and Dinosaur NM in 2014. However, if the sequestration remains in effect, some parks will not be monitored. The NCPN invasive plant monitoring protocol was approved in 2013.

Contact

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Network park units where invasive exotic plants are monitored

Black Canyon of the Gunnison NP	Dinosaur NM
Capitol Reef NP	Fossil Butte NM
Colorado NM	Golden Spike NHS
Curecanti NRA	Zion NP

NP = National Park; NM = National Monument;
NRA = National Recreation Area; NHS = National Historic Site

Revisits Show Changes in Infestation Numbers

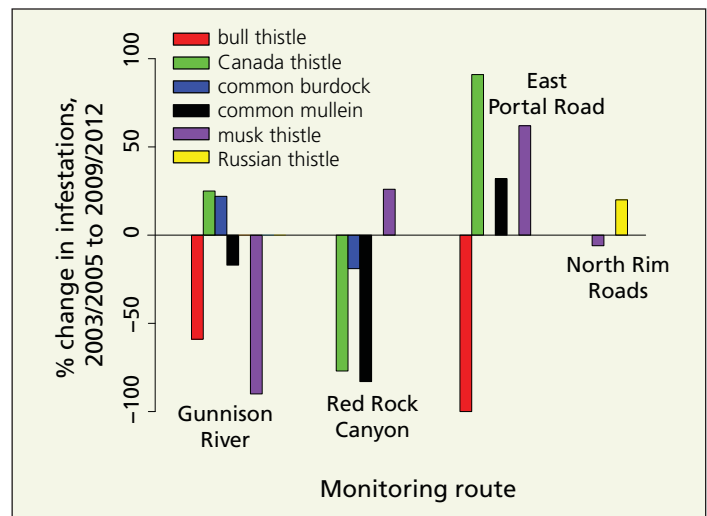
With the first full round of invasive exotic plant (IEP) monitoring now completed at some NCPN parks, it is possible to show changes in selected infestation numbers over time.

For instance, at Black Canyon of the Gunnison NP, percent change in IEP species with 10 or more recorded infestations ranged from a 100% reduction in bull thistle infestations (25 to 0 infestations) along East Portal Road to a 91% increase in Canada thistle infestations (32 to 61) along the same road. It is encouraging to see declines in infestations along the Gunnison River, Red Rock Canyon, and the upper portion of East Portal Road, as all of these areas have been the focus of IEP control efforts. The increases in infestations along East Portal Road suggest it may be time to direct eradication efforts there.

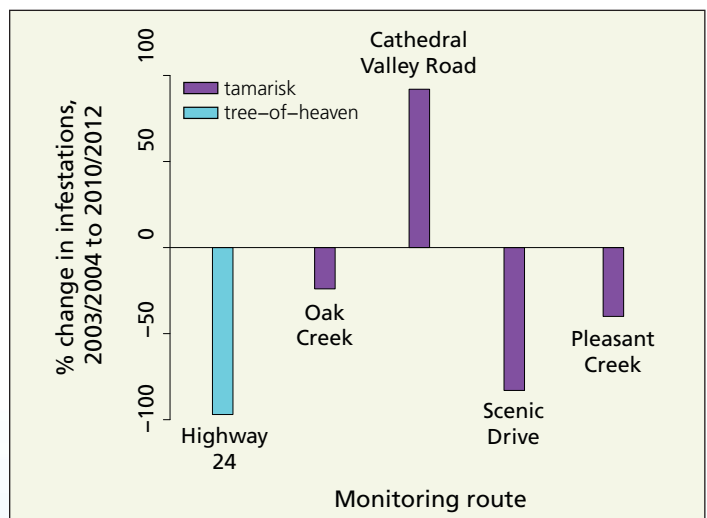
At Capitol Reef NP, percent change ranged from a 97% drop in tree-of-heaven infestations (71 to 2) along Highway 24 to a 92% increase in tamarisk infestations (12 to 23) along Cathedral Valley Road. Tamarisk infestations along Oak Creek and Pleasant Creek tended to be smaller than those along Highway 24 (near the Fremont River), indicating that control efforts may be more feasible along the creeks than along the highway. Oak Creek, Cathedral Valley Road, and the Scenic Drive all had low percent cover of IEPs. In these areas, infestations should be controlled before they become more widespread.

Capitol Reef NP staff members have targeted tree-of-heaven for control efforts since the inventories in 2003 and 2004, and estimate that they are close to eradicating this species in the park—as is evidenced by the 97% drop in this species along Highway 24 between 2003–2005 and 2009–2010.

The NCPN will begin the second rotation of IEP monitoring at Capitol Reef NP in 2013, and at Black Canyon of the Gunnison NP in 2014.



Percent change in infestations, Black Canyon of the Gunnison National Park.



Percent change in infestations, Capitol Reef National Park.



Monitoring invasives at Capitol Reef NP.
NPS PHOTO.