



So...You Have Invasives. Here's How to Better Manage Them.



So many weeds, so little time.

Invasive plants are a large and, literally, growing problem for many national parks. These unwelcome invaders reduce native diversity, alter forest structure, suppress tree regeneration, and alter nutrient cycling among other negative impacts. Any way you slice it, trying to slow or reverse the

spread of invasive plants is a daunting task. Enter: the Habitat and Invasive Species Management Planning Process, a decision-making tool developed by Art Gover of the Penn State Wildland Weed Management program, that can help parks prioritize where to focus limited resources so they can manage invasive plant species more effectively. It has met with success in state parks and some national parks in Region 1 are now starting to implement it.

The Problem: Invasive Plants Keep Expanding

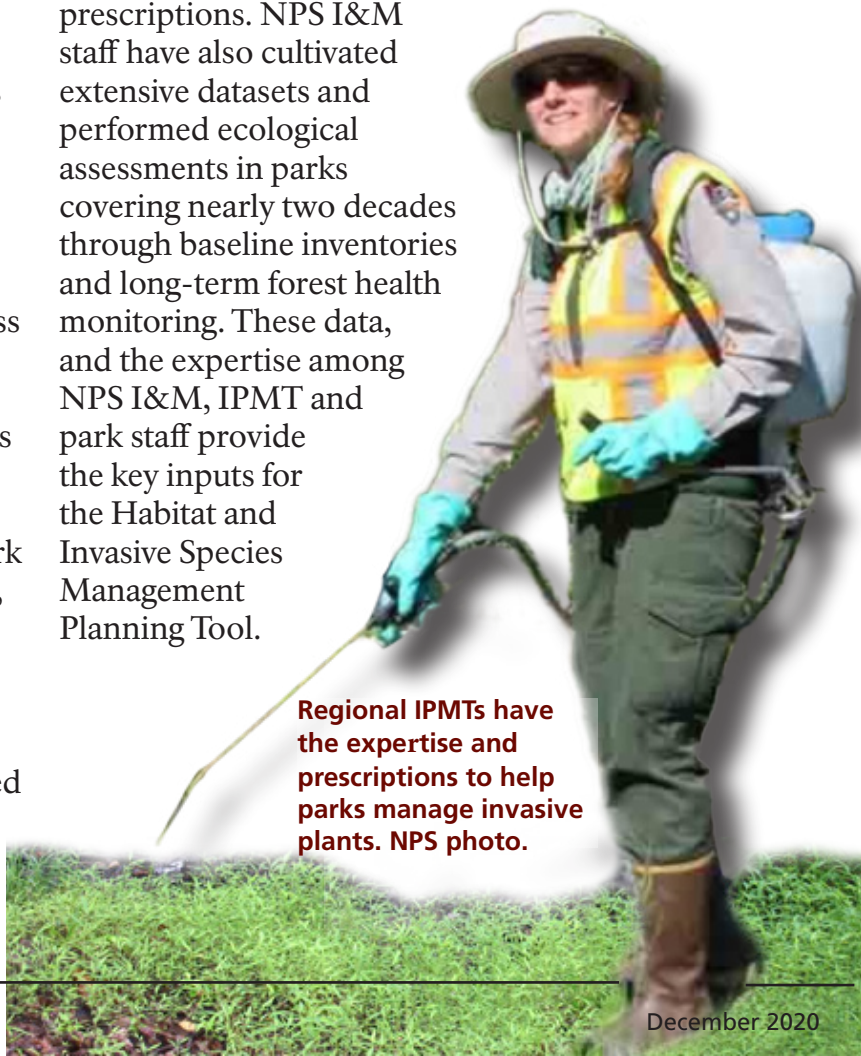
Over the last several centuries forest fragmentation, a warming climate, and the land-use history of the eastern U.S. have set the stage for expansion of invasive plants. A recently published paper on invasive plant trends by NPS I&M scientists highlighted analysis of 12 years worth of data collected from over 1,400 forest plots in 39 eastern national parks. They were concerned to find far more increasing than decreasing trends in invasive plant abundance. In fact, 80% of the parks had at least one significant increasing trend in invasive abundance over time. Park managers are struggling to curb pathways of invasion (some, like birds distributing seeds seem near impossible to stop). There are current and legacy effects from land use, deer and other invasives (i.e. earthworms) that will take many years or even decades to play out or mitigate. Over-abundant deer in particular can encourage the spread of invasive species through seed dispersal, the browsing of native plants, and soil compaction. A recent study in Catoctin Mountain Park found that Japanese stiltgrass abundance and expansion have a strong association with high deer densities.

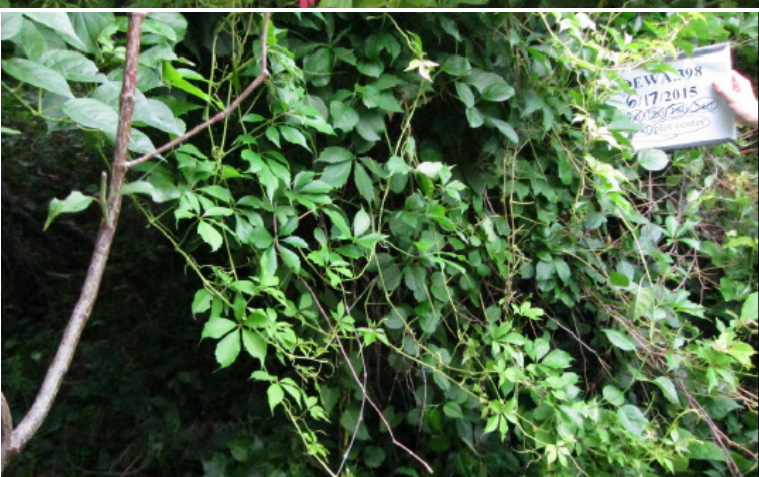
The high and often increasing abundance of invasives in the majority of eastern parks poses significant threats to the long-term condition of forest health, and is in conflict with the mission of the National Park Service. While many parks actively manage invasives, few in the region have the long-term resources needed to reduce the persistent, negative impacts of invasive plant species. Just as the NPS seeks to overcome a deferred maintenance backlog for buildings, roads and other infrastructure, the deferred management of natural resources should receive equal attention and sustained commitment to ensure the long-term ecological health of our national parks.

The Solution: Collaborative Strategic Planning

For many parks, managing invasive plant species can seem like an endless and insurmountable drain on staff time and park budgets. Limited resources paired with ever-increasing invasives makes for a challenging dilemma. Thus, strategic management is essential to control invasive species spread. Luckily, parks are not in this alone. The NPS I&M program and regional Invasive Plant Management Teams (IPMT) are key allies in helping parks tackle issues like invasive species management. Regional IPMT's in particular offer savvy technical expertise and can recommend and carry out treatment prescriptions. NPS I&M staff have also cultivated extensive datasets and performed ecological assessments in parks covering nearly two decades through baseline inventories and long-term forest health monitoring. These data, and the expertise among NPS I&M, IPMT and park staff provide the key inputs for the Habitat and Invasive Species Management Planning Tool.

Regional IPMTs have the expertise and prescriptions to help parks manage invasive plants. NPS photo.





These 2007 to 2015 photos at the Delaware Water Gap NRA show how quickly invasive plants can take over. NPS photos.

A Strategic Management Decision Tool
To effectively use finite resources, habitat management must be prioritized. Determining which invasive plants and what areas to prioritize for treatment can feel like an overwhelming task for many parks. Thankfully, the NPS I&M and IPMT programs are here to help parks implement a straight-forward tool that creates a prioritized plan to protect their most valued places, and lay out a path towards successful on-going management. National parks such as New River Gorge NRA and Gauley River NRA are already

successfully implementing the Habitat and Invasive Species Management Planning Process. NPS Ecologist Doug Manning credits it with helping to identify specific taxa and park areas that should be prioritized for invasive plant management through objective, data-driven analyses. This is helpful when there is a need to justify how and where park efforts should be focused, especially if there is pressure to focus on other areas that may not be the most effective to promote ecological integrity in the long-run and on a broader scale.

The planning tool allows our parks to take a fresh look at invasive species management plans and easily incorporate data from vegetation mapping, EDDMapS, and long-term forest health plots while taking into account rare or vulnerable vegetation associations as well as opportunities for stewardship and weighting them accordingly.

- NPS Ecologist Doug Manning

How The Tool Works
The process is site specific, evaluating the extent of invasive species in the most ecologically and culturally important areas of the park. Using information readily at hand, indices are derived for the ecological integrity and outreach value of a specific park area, and for the extent, impact, and restoration effort for each invasive species. This cumulative index provides the park a ranked work list. A major benefit of this “bundling” approach is that management efforts target many invasive species within high priority areas of the park. The prioritized work list provides operational ‘prescriptions’ describing targets, equipment, and other materials. This is a powerful tool that helps to give parks ownership of the process and determine where best to focus their resources. It provides for a seamless integration of existing I&M data, IPMT expertise, and park knowledge and priorities to create a strategic plan for parks to most effectively use their limited resources for invasive management when and where it is most important.

For More Information

- Learn more about the tool and explore other resources by visiting the [NPS Invasive Species in Eastern National Parks](#) SharePoint site.
- [Read the NPS I&M study paper](#) on the spread of invasive species in eastern national parks.