National Capital Region Network

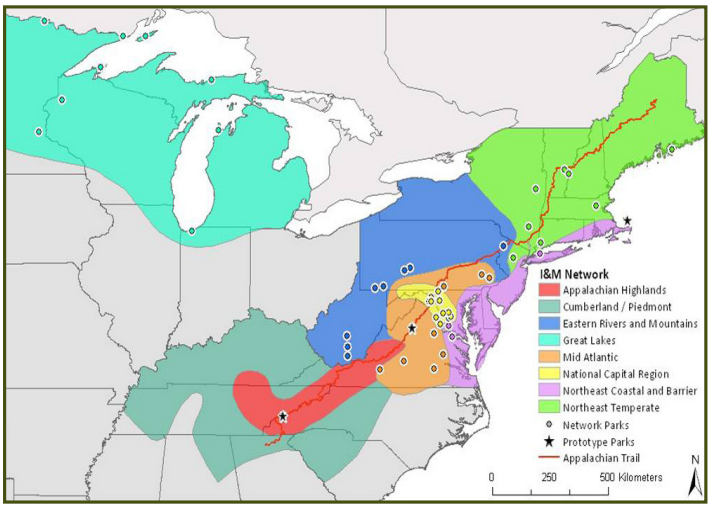
National Park Service
U.S. Department of the Interior

Forests in a Regional Context *Resource Brief*

Importance

Forests in National Capital Region Network (NCRN) parks are part of the greater eastern deciduous forest which stretches over 26 states. To understand how NCRN forests fit into this larger picture we look at two indicators of forest health: exotic invasive plants and tree seedling regeneration.

Exotic invasive plants pose a serious threat to NCRN forests because they can outcompete native plants, suppress forest regeneration, degrade wildlife habitat, and affect soil fertility. The number of tree seedlings present on the forest floor is an important indicator of whether the forest can renew itself as older trees die.



Credit: NPS/K. Miller

Inventory and Monitoring networks and parks participating in regional forest monitoring collaboration.

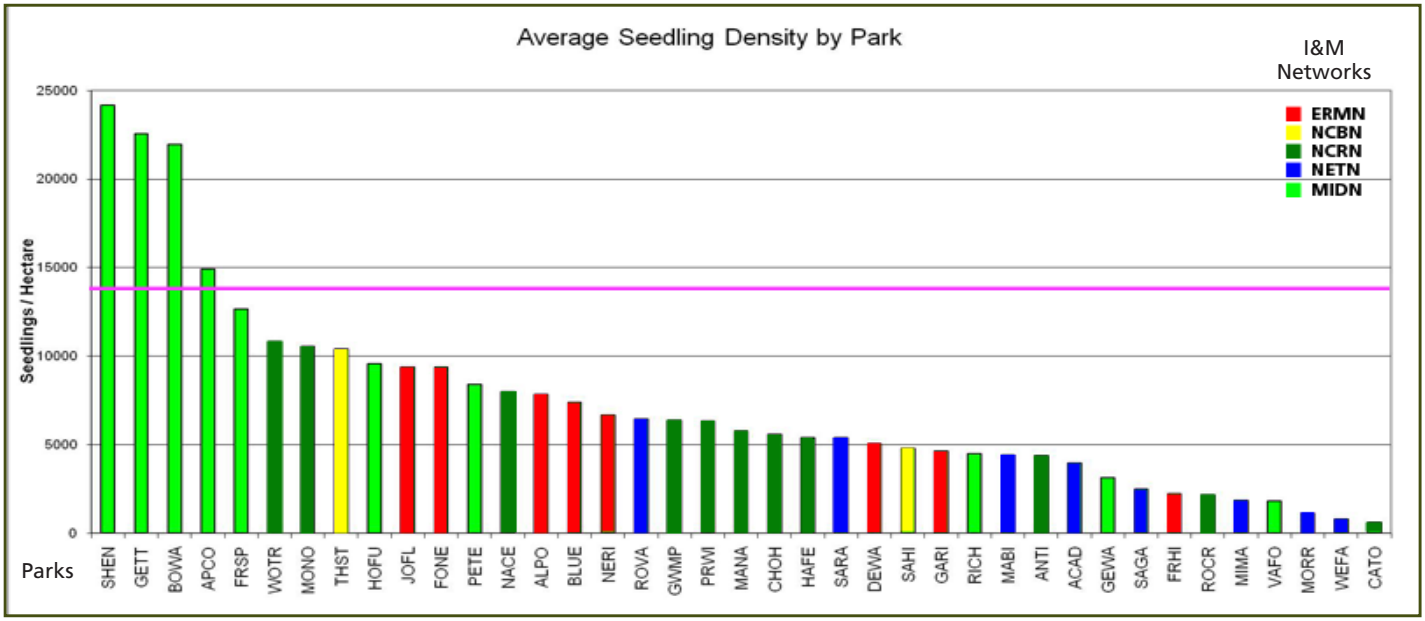
Monitoring

The NCRN is part of a broad collaboration on forest health monitoring with a total of 61 national parks in the eastern United States. Since 2005, these parks (which make up 8 Inventory and Monitoring [I&M] networks plus 3 individual parks) have been collecting vegetation data in similar ways, so parks can compare results. These parks represent 23% of all parks in the I&M Program (see map).

Results - Seedlings

Seedling density varies greatly amongst 39 of the collaborating parks (Figure 1). In the NCRN, tree regeneration is strongly influenced by deer browse, invasive exotic plants, and fire suppression. When compared with other parks in the northeast:

- all NCRN parks came in below the suggested US Forest Service target of 14,000 seedlings per hectare.



Credit: NPS/S. Perles

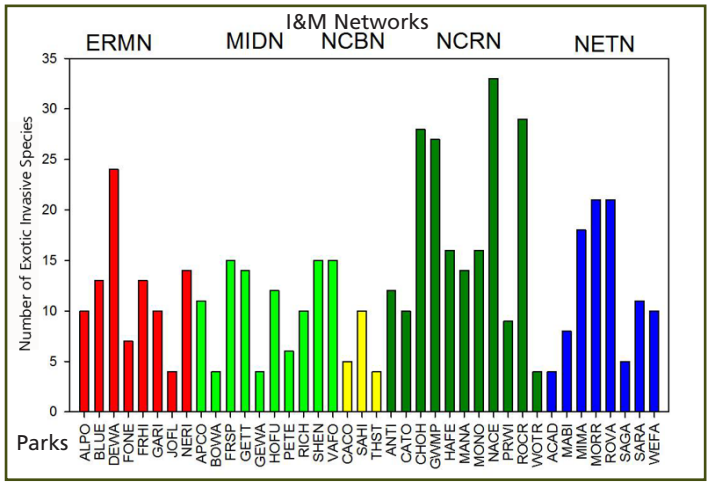
Figure 1. Average tree seedling density for 39 national parks with comparable regeneration sampling methods. The solid pink line shows the suggested US Forest Service target of 14,000 seedlings per hectare. [Abbreviations on reverse]

- Catoctin Mountain Park has the lowest seedling rates of all 39 parks and Rock Creek Park ranks in the lower 20th percentile.

Results - Exotics

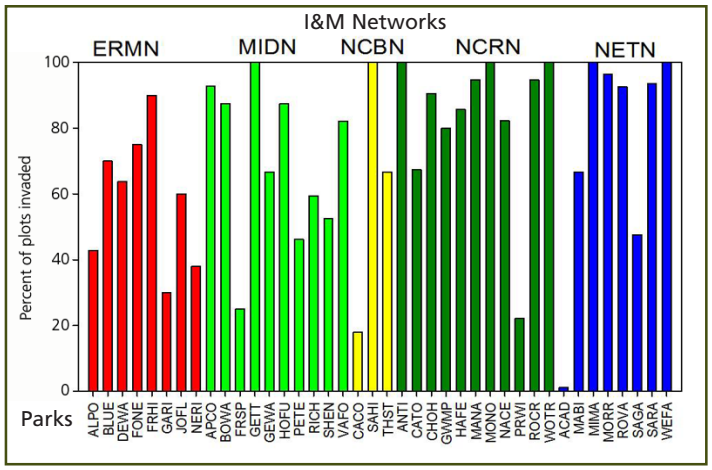
The diversity and distribution of exotic invasive plants varies among NCRN parks and compared to other parks in the northeast. Figure 2 shows the number of different exotic plants detected in monitoring plots by park. This does not tell us if invasives cover most of a plot or only exist as isolated individuals, but it does give a sense of the number of threats acting on a park. When compared with other parks in the northeast:

- NCRN comes out as home to the highest number of different exotics per plot.
- National Capital Parks - East (NACE) contains more different species of exotic invasive plants than any other park.



Credit: NPS/J.P. Schmit

Figure 2. Number of different exotic invasive plant species detected in forest monitoring plots in 40 national parks with comparable invasives sampling methods.



Credit: NPS/J.P. Schmit

Figure 3. Percentage of forest monitoring plots that contained at least one exotic invasive plant in 40 national parks with comparable invasives sampling methods.

Figure 3 shows the percentage of plots in a park that contain at least one exotic. Parks with low numbers of monitoring plots (ANTI, MONO, and WOTR) may score poorly, but there is higher uncertainty with these estimates.

- Nearly all plots at Rock Creek and Manassas (both with 19 plots each) had at least one exotic.
- More than 90% of the 73 plots at the C&O Canal (CHOH) had at least one exotic.

References:

Schmit et al. 2009. National Capital Region Network Long-Term Forest Vegetation Monitoring Protocol Version 2.0. Natural Resource Report NPS/NCRN/NRR—2009/113. National Park Service, Fort Collins, Colorado. https://nrinfo.nps.gov/Reference.mvc/DownloadDigitalFile?code=152612&file=NCRN_Forest_Protocol_Ver_ 2.0_ NRR.pdf

PARK AND NETWORK ABBREVIATIONS

ACAD = Acadia National Park, ALPO = Allegheny Portage Railroad National Historic Site, ANTI = Antietam National Battlefield, APCO = Appomattox Court House National Historical Park, APHN = Appalachian Highlands Network, BLUE = Bluestone National Scenic River, BOWA = Booker T. Washingotn National Monument, CACO = Cape Cod National Seashore, CATO = Catoctin Mountain Park, CHOH = Chesapeake and Ohio Canal National Historical Park, CUPN = Cumberland Piedmont Network, DEWA = Delaware Water Gap National Recreation Area, ERMN = Eastern Rivers and Mountains Network, FONE = Fort Necessity National Battlefield, FRHI = Friendship Hill National Historic Site, FRSP = Fredericksburg and Spotsylvania National Military Park, GARI = Gauley River National Recreation Area, GETT = Gettysburg National Military Park, GEWA = George Washington Birthplace National Monument, GWMP = George Washington Memorial Parkway, GLKN = Great Lakes Network, GRSM = Great Smoky Mountains National Park, HAFE = Harpers Ferry National Historical Park, HOFU = Hopewell Furnace National Historical Site, JOFL = Johnstown Flood National Memorial, MABI = Marsh-Billings Rockefeller National Historical Park, MANA = Manassass National Battlefield, MIDN = Mid-Atlantic Network, MIMA = Minute Man National Historical Park, MONO = Monocacy National Battlefield, MORR = Morristown National Historical Park, NACE = National Capital Parks East, NCRN = National Capital Region Network, NCBN = Northeast Coastal and Barrier Network, NERI = New River Gorge National River, NETN = Northeast Temperate Network, PETE = Petersburg National Battlefield, PRWI = Prince William Forest Park, RICH = Richmond National Battlefield Park, ROCR = Rock Creek Park, ROVA = Roosevelt-Vanderbilt National Historical Sites, SAGA = Saint Gaudens National Historic Site, SAHI = Sagamore Hill National Historic Site, SARA = Saratoga National Historical Park, SHEN = Shenandoah National Park, THST = Thomas Stone National Historic Site, VAFO = Valley Forge National Historical Park, WEFA = Weir Farm National Historic Site, WOTR = Wolf Trap National Park for the Performing Arts