

# Insecure Forest Regeneration Needs Sustained Management in Wolf Trap Park for the Performing Arts

## Introduction

Forests are one of the key parts of the landscape and visitor experience in Wolf Trap Park for the Performing Arts (WOTR). Forest ecosystems are facing many stressors, including non-native plants, invasive tree pests, overabundant deer, lack of fire, and adjacent development affecting incoming water levels and wind exposure. These stressors diminish forest resilience, defined as the ability of an ecosystem to experience disturbance and rebound to similar functions, structure, and composition. A lack of tree regeneration—seedlings and saplings of canopy-forming trees—is an early indicator of reduced resilience and potential for future forest loss.

A recent study by several NPS Inventory and Monitoring networks assessed regeneration metrics in 39 parks from 2008 to 2019. Parks were placed in one of four regeneration categories (Secure, Insecure, Probable Failure, and Imminent Failure), based a variety of metrics that represent the amount and diversity of tree regeneration. Forests in 27 of 39 parks were classified in either imminent or probable failure categories due to a lack of seedlings and saplings in the understory. *The study identified overabundant white-tailed deer and invasive plants as the leading causes of concern for forest regeneration.* For more detailed information on the full study, see the source publication in the Resources section below.



Hungry white-tailed deer can eat much of the vegetation in a forest that is within their reach.  
NPS

## Main Findings

As of data collected through 2019, on a four-category scale (Secure, Insecure, Probable Failure, and Imminent Failure), WOTR has a forest regeneration status of **Insecure**. This designation means that the park currently lacks adequate saplings and seedlings, but that seedling density has been increasing over time. Deer browse impacts in the park are rated moderate.

## Management Recommendations

Eastern national parks need sustained, [integrated forest management](#) to secure sufficient regeneration and avoid future forest loss. We suggest that managers at WOTR:

- Consider deer population reductions to protect forest regeneration from browse impacts and allow complete seedling and sapling recovery.
- Continue to remove invasive plants through methods including early detection and rapid response and strategic invasive plant management in high priority habitats. Also consider release of approved biological controls.
- Consider tools available to address forest insect pests and pathogens. Assess forest stands at risk or already impacted (such as those damaged by emerald ash borer) and prioritize invasive plant management where canopy gaps have increased or may increase soon.

Continuing and expanding these management efforts are especially important for WOTR as the park could be at risk of losing forest cover without intervention. With conditions changing rapidly, NPS park and regional staff should continue adopting an adaptive management lens, by frequently re-assessing forest conditions and assessing management effectiveness using long-term ecological monitoring data collected by the park and the Inventory and Monitoring program. Please refer to the source publication for more information on management strategies and reach out to the contact below for further assistance.

## Resources

**Source Publication:** Miller K., Perles S., Schmit J.P., Matthews E., Weed A., Comiskey J., Marshall M., Nelson P., Fisichelli N. (2023). Overabundant deer and invasive plants drive widespread regeneration debt in eastern national parks. *Ecological Applications*.

<https://doi.org/10.1002/eap.2837>

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## Links:

[Managing Resilient Forests Initiative for Eastern National Parks](#)

To see more park briefs, visit this link: <https://schoodicinstitute.org/park-forests>

NPS News Release: [Reducing deer numbers and removing invasive plants are key to long-term forest health - Catoctin Mountain Park \(U.S. National Park Service\) \(nps.gov\)](#)