



Gettysburg National Military Park's Forests Regeneration Status is Probable Failure

Introduction

Gettysburg National Military Park's (GETT) forest regeneration status of 'Probable Failure' means that the park is experiencing regeneration failure as indicated by lacking and/or declining sapling density, although seedlings are more abundant than in the 'Imminent Failure' category.

Main Findings

Gettysburg National Military Park (GETT) is located in the Mid-Atlantic (MIDN) Inventory and Monitoring Network (Figure 1). GETT's regeneration status is categorized as Probable Failure. Figures 2 & 3 present trends of tree, sapling, and seedling measures. Figure 4 shows the stocking index for GETT, and Figure 5 represents trends in tree basal area and density. To see the distribution of trees by diameter classes, see Figure 6. Finally, a full summary of regeneration status, native canopy trends, native sub-canopy trends, and exotic trends for 13 metrics can be seen in Table 1.

Management Suggestions

These findings underscore the critical importance of an integrated forest management approach that promotes an abundant and diverse regeneration layer. In most cases, this can only be achieved through long-term (i.e. multi-decadal) management of white-tailed deer and invasive plants. Small-scale disturbances that increase structural complexity may also promote regeneration where stress from deer and invasive plants is minimal. Without management intervention, forest loss may become a widespread pattern in eastern national parks and the broader region.

Source Publication and resources

Miller K., Perles S., Schmit J.P., Matthews E., Weed A., Comiskey J., Marshall M., Nelson P., Fisichelli N. 202X. Forests in eastern national parks face widespread regeneration debt. *Ecological Applications*.

Contact:

1. Kate Miller (kathryn_miller@nps.gov)

Links:

1. Managing Resilient Forests Initiative for Eastern National Parks

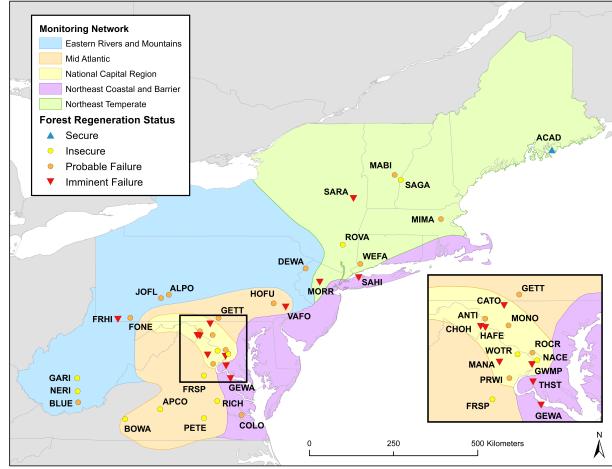


Figure 1. Map of parks included in regional regeneration project and forest regeneration status.

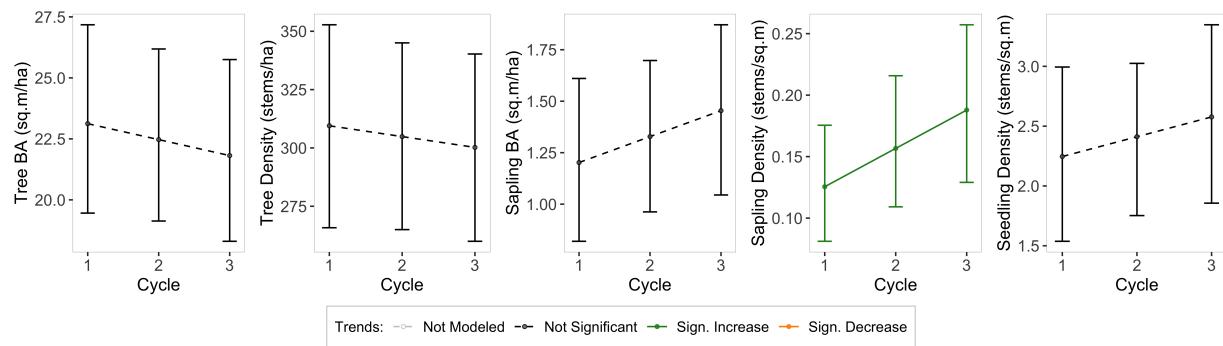


Figure 2. Trends in live tree, sapling and seedling abundance of all species and size classes. Trends are based on change over time across three complete survey cycles: Cycle 1 spanning 2008 – 2011, Cycle 2 spanning 2012 – 2015, and Cycle 3 spanning 2016 – 2019.

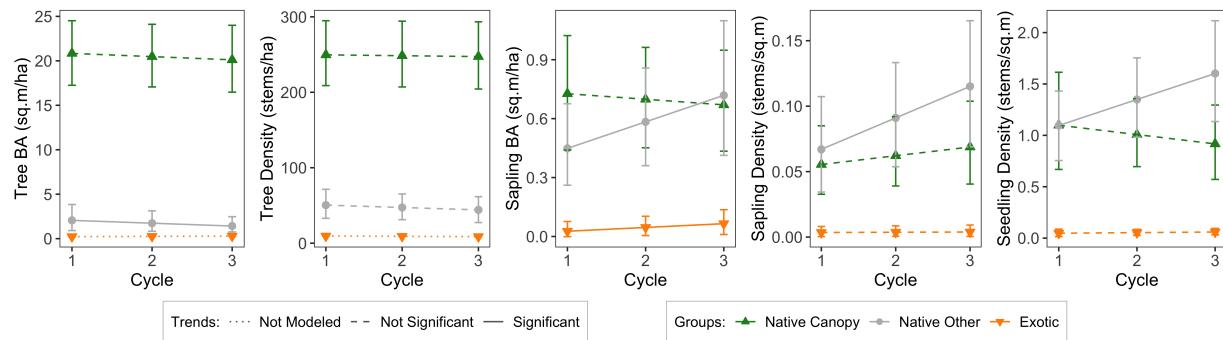


Figure 3. Trends in tree, sapling and seedling abundance by species group. Trends are based on change over time across three complete survey cycles: Cycle 1 spanning 2008 – 2011, Cycle 2 spanning 2012 – 2015, and Cycle 3 spanning 2016 – 2019.

Table 1. Summary of status and trends for each forest metric. Regeneration status metrics are based on the most recent 4 years of data (2016 – 2019). For more information on how the status thresholds are defined, see the source publication.

Variable	Regeneration Status	Native Canopy Trends	Native Subcan. Trends	Exotic Trends
Tree BA	NA	no supported trend	decrease	not modeled
Tree Density	NA	no supported trend	no supported trend	not modeled
Sapling BA	NA	no supported trend	increase	increase
Sapling Density	critical	no supported trend	increase	no supported trend
Seedling Density	caution	no supported trend	increase	no supported trend
Stocking Index	caution	no supported trend	NA	NA
% Stocked Plots	critical	NA	NA	NA
Deer Browse Impacts	caution	NA	NA	NA
Flat Tree Diam. Dist.	acceptable	NA	NA	NA
Sapling Composition	critical	NA	NA	NA
Seedling Composition	critical	NA	NA	NA
Sorenson Sapling	acceptable	NA	NA	NA
Sorenson Seedling	critical	NA	NA	NA