



Midday Magazine

Study finds most forests in eastern national parks at risk

WAMC Northeast Public Radio | By [Jim Levulis](#)

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Jim Levulis / WAMC

Saratoga National Historical Park in unstate New York

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The Roundtable

A new study finds most forests in eastern national parks are at risk due to overabundant deer and invasive plants. Using 12 years of data, [the National Park Service report](#) looks at 39 parks, classifying forests in 27 of them as facing imminent or probable failure.

Saratoga National Historical Park in New York falls into the imminent failure category. Just one park, Acadia in Maine, is deemed secure.

WAMC's Jim Levulis spoke with Kate Miller, a quantitative ecologist with the National Park Service and the study's lead author.

Miller: So I think the key finding that we found was the widespread regeneration debt in our parks. Ultimately, we found that two-thirds of the park from the study, two-thirds out of 39 parks in the Northeast, were classified as imminent or probable failure for regeneration. And so these forests are one major disturbance away from forest loss. And in some cases, we're actually seeing forest loss happening where intense storm events or forest pests have taken out the canopy trees. And so forest loss is actually occurring in some of our parks because of this problem. And then another key takeaway is that overabundant deer and invasive plants were found to be the main drivers of this regeneration problem.

Levulis: And what makes this regeneration issue so important to the overall health of the ecosystems there?

Miller: Yep, that's a great question. And so regeneration is really important in Eastern forests, because Eastern forests generally maintain themselves through the regeneration layer in the understory. And so when trees die in the canopy seedlings and saplings that were already present in the understory, generally are there to respond and fill in the gap from below. And so when there is no regeneration in the understory to replace the canopy, our forests are at risk of loss as we lose trees in the canopy. And in many cases, these forests convert to invasive shrub thicket. And so it's not just loss of forest, but it changes state into an invasive shrub ticket.

Levulis: And I know you mentioned that deer, the overabundance of deer and then invasive species are two of the main drivers here. But even in terms of regeneration efforts, I understand, there's disease worries, right with the emerald ash borer and

Miller: Yes, right. So forest pests and diseases are kind of exasperating the problem. For example, we have a number of parks where there is a lot of regeneration, but it's primarily ash. And it wasn't a problem until emerald ash borer came along. But now the emerald ash borer is pretty widespread in our region, those ash seedlings aren't going to become forest. We've lost ash in the canopy, and then we don't have something to replace it. And so it's really important to have a diverse regeneration layer so that something is there to replace, maybe not all the species will be able to respond, but you'll have something so there's, you know, more response variability in the system.

Levulis: And how did the forests in this part of the country get to be this way? I think you mentioned in the report, you know, the deer management efforts have been going on since the 1990s. So since in a sense, how did we get to this point?

Levulis: Yeah, so deer management, it hasn't happened everywhere. It's happened in Gettysburg since the mid-90s in Pennsylvania. It's happened in a number of national capital region parks and mid-Atlantic region for over a decade. But the parks where we're seeing the most significant impacts, or saw in the study, they have not undertaken deer reduction yet. We're working on it now, actually.

Levulis: What are some of the overall remediation efforts that are suggested or underway?

Miller: Yeah, I mean, first, you have to know, how many deer you have basically? And you don't have to have a precise number, but we need to count deer. So we need to start monitoring deer, which haven't done as extensively as we need to across our region. We also have to go through NEPA [National Environmental Policy Act] compliance to make sure that we're taking the right actions to get the desired outcomes of having a diverse regeneration layer. And so there's all this legwork that has to happen before we can actually go out and start reducing the deer herd. And that's partially why it's taking us a while to get to that in all of our parks.

Levulis: That's because there's certain restrictions, regulations on the amount of hunting or harvesting of deer in national parks particularly, right?

Miller: Yeah, and in general, most parks do not allow hunting. It would take an act of Congress to allow hunting in many of our parks. National recreation areas are different,

Levulis: Now in terms of looking at the forest themselves, and the tree species that are part of those forest. I understand there's a Resilient Forest Initiative underway. What does that entail in terms of making sure the proper species are there and then the invasive species aren't?

Miller: Yeah, right. So kind of the whole goal of the Resilient Forest Initiative is to make our forests more resilient. And I know it's like the same word in the definition. But it's to increase diversity and abundance of the regeneration layer in the understory so that they have more response variability to disturbances or pests or diseases. And so what we're really doing with this initiative is, for one, we're communicating the trends that we're seeing in our data across the region. But then we're also bringing parks together that have similar problems so that we can help solve these problems more efficiently and effectively. So that, you know, each park isn't trying to reinvent the wheel, we're actually learning from each other and bringing our problems together to try to tackle things more efficiently.

Levulis: And this is a long-term strategy, right? You mentioned in the report, the study here that chronic deer over abundance can take as long as 40 to 70 years to sort of settle itself out, if I understand it correctly.

Miller: Yeah, that's what one study found. It does take decades. That's what our data tell us for sure. That, you know, decades of chronic deer over abundance and invasive plants takes decades to reverse the trends. And so the parks that have been managing deer for over a decade, we are seeing really positive responses in the understory. But again, you have to keep the deer numbers down for long enough that you don't just see increases in seedlings, but you see increases in saplings, which are the bigger size class that those then recruit into the canopy.

Levulis: And we spoke about the Resilient Forest Initiative and those efforts under underway. Is there the money and the staff there to tackle these remediation efforts? I know there was a big push regarding the deferred maintenance backlog as it pertains to the National Park system overall. And that, you know, sort of led to the Great American Outdoors Act's passage. But this might fall under a different category, if I understand it.

Miller: Yeah, it falls in under a different category. There are some new funding sources

for example, there are a number of Eastern national parks that are slated to receive funding through the bipartisan infrastructure law for resiliency projects. A lot of it's like dealing with invasive plants, and also planting some native species to kind of help speed up the process to restore the understory. So we're working on it. It seems like they like we're very optimistic that there's going to be more funding and capacity towards this. But that has been, you know, kind of a part of why we haven't made more progress to date, is the lack of capacity. Just one thing to mention is just that there is hope. These trends are very concerning. Forest loss is a big deal. But, but there's still time to fix this. We know how to fix this. And many parks are already working on this problem. So there's hope even though it seems pretty dire.

Levulis: And overall, though, this this data, and then these regeneration efforts, will be able to shed some light on how the overall eastern United States and its forests might be able to look at and remedy this problem. The national parks, from my understanding, sort of lend itself to be able to conduct this sort of work and study and then apply that more broadly.

Miller: Yeah, definitely. These problems aren't restricted to national parks. We are collecting really high-resolution data in the national parks to let us see what's happening. And then, you know, we have the ability to actually improve the situation and then see through our management actions, the response in the understory. So yeah, it really gives us the opportunity to figure out what the problems are, what we need to do, and then that can be applied elsewhere.

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Jim Levulis

Jim is WAMC's Associate News Director and hosts WAMC's flagship news programs: Midday Magazine, Northeast Report and Northeast Report Late Edition. Email: jlevulis@wamc.org

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