



Delaware Water Gap National Recreation Area

IMPORTANCE

The vast majority of Delaware Water Gap NRA (DEWA) is forested, and these forests are critical park resources that provide many important functions. Forests in DEWA create habitat for hundreds of species of plants and animals; as well as maintain soil stability and protect water quality. Besides providing beautiful landscapes for people to recreate in, forests also influence our weather and reduce some gases that contribute to climate change.

Studying the different components of a forest gives us information on the health of the forest, which allows park managers to make better informed decisions on how to manage the forest. Several important stressors to the DEWA's forest health are exotic species, white-tailed deer, atmospheric acid and nutrient deposition, climate change, and altered disturbance patterns.

WHAT WE ARE DOING

The Eastern Rivers and Mountains Network (ERMN) monitors forest health by collecting monitoring data on canopy trees, tree regeneration, shrubs, plant diversity, downed logs, and soil at permanent plots established in the parks. Data collection began in 2007, and thus far, 77 plots have been established in DEWA. By the end of 2010, all 100 monitoring plots will be established in DEWA. Data will be collected from 25 plots in DEWA every year, such that each plot will be visited every 5 years.

WHAT WE ARE FINDING

In general, forests in DEWA are typical of other second-growth forests in the Appalachian Mountains. Some important highlights from the forest health monitoring include:



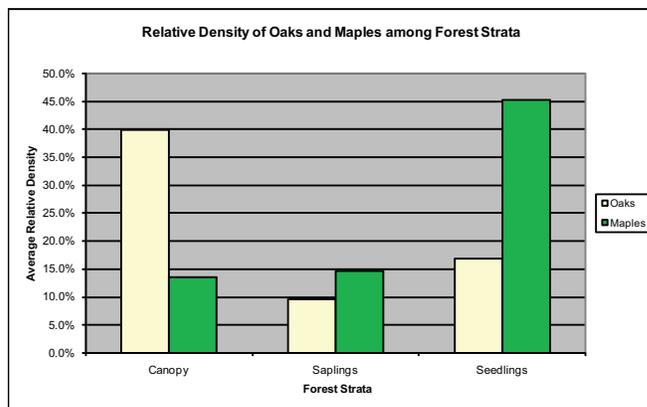
John Wiley collecting forest monitoring data. Photo: S. Perles.

Exotic Invasive Species

Exotic invasive species are a pervasive and serious threat to the park's forest, especially on lower slopes, floodplains, and former agricultural areas. Nearly 60% of the monitoring plots contain exotic invasive plants. Two exotic invasive species new to the park were documented during forest health monitoring. These findings underscore the vital importance of managing invasive exotic species to protect the park's forests.

Forest Composition

Disproportionately fewer oaks occur in the forest understory when compared to the forest canopy (see figure below). This means that as large oaks die, they likely will be replaced by red maple, white pine and black birch that are common as saplings and seedlings. There are many birds, insects, and mammals dependent on oak trees that would be affected by this shift in forest composition.



Tree species distribution among forest strata in Delaware Water Gap NRA.

Forest Regeneration

Many forest stands do not contain sufficient tree regeneration to replace the forest canopy. In these stands, large trees will not be quickly replaced when they die and the forest will take longer to re-establish after disturbances. This regeneration failure could be attributed to many different factors. As more monitoring data are collected, we hope to provide guidance on potential management actions pertaining to forest regeneration.

CONTACT INFORMATION

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