

# The Impact of Deer Browsing on Seedling Growth and Survival in a Northeastern Pennsylvania Forest

A Summary of a Research Paper by Elizabeth A. Maher

April 1997. Summarized by 2017 Intern Zack Smith

Situated in Wayne County, PA, Lacawac Sanctuary boasts a unique forest and a steady white-tailed deer population. With this taken into consideration, it is important to monitor mortality of undergrowth in the forest.

Beginning in 1996, Elizabeth Maher began a study comparing growth and mortality of red oak and red maple seedlings in and around two deer exclosures next to the current Ledges trail. In this study, she tagged over 1,000 red maple and over 200 red oak seedlings, most of which were less than three years of age, and monitored changes they went through. Maher studied trees inside the two exclosures, as well as trees outside them to allow for a control to be set to see how the

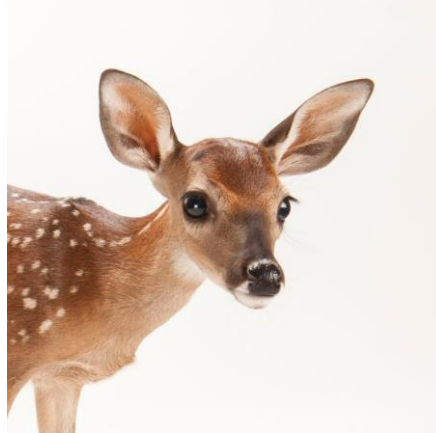


local deer population impacted the young tree population in the area.

What she found over the course of that summer was quite interesting. First, she established that

there was not a large correlation between the age of the trees and their height, leading to the conclusion that other factors influence how high a tree grows. She also found that red oak seedlings tended to grow higher in

their first few years compared to red maples. The study also monitored the mortality rates



of the seedlings, and Maher found that first-year red oak seedlings were more prone to dying than the larger red maple population.

Having a background on the tree heights and ages, Maher was then able to use that data to see which trees outside of the exclosures were more likely to be browsed by white-tailed deer in the forest. Maher found that the smaller trees were not as appealing to the deer. Leaving most of the browsing to be done on the larger seedlings, and according to Maher, the impact from the deer was evident. The initial data found that even in the short period of data collection that summer, the deer population was leaving a

large impact on the new growth in the forests of Lacawac.

The deer exclosures are still set up on the Ledges Trail and you can see how the undergrowth inside the fence is much thicker than the undergrowth of the forest where deer roam. The forests within the exclosures has been growing for over twenty years without any interference from deer. Therefore, the forest inside has a much greater biodiversity than the forest outside. This obvious difference helps researchers study the everlasting impact the deer have to this day. The exclosures are also of importance now because they help show the natural succession of Lacawac's forests. Succession outside of these two areas is impacted when new growth does not have the ability to mature, ultimately delaying the development of the forest at Lacawac.

This study on the impacts the white-tailed deer populations at Lacawac have is still very relevant today, and you can probably see why the next time you walk past any of the exclosures.



## Board of Trustees and Staff

### Officers

Peter Paul Olszewski, Esq. –*Chair* \* Cliff David, *Vice Chair*  
Mary Ellen Bentler, *Vice Chair* \* William Leishear – *Treasurer/Secretary*

### Directors

Charlie Anderson \* Bryon Clark \* Robert Eckstein \* Janet Fischer, PhD \* Emily Grillo \* Phil Hobson  
Jack Spall, Esq. \* Susan Kilham, PhD \* Chad Reed-Watres \* David Velinsky PhD

### Lacawac Staff

Craig Lukatch, President, [craig.lukatch@lacawac.org](mailto:craig.lukatch@lacawac.org) \* Jamie Reeger, Environmental Education Manager, [jamie.reeger@lacawac.org](mailto:jamie.reeger@lacawac.org)

Heidi Van Leuven, Artists' Residency Director/Venue Coordinator, [residency@lacawac.org](mailto:residency@lacawac.org) \* Sarah Corcoran, Environmental Educator, [sarah.corcoran@lacawac.org](mailto:sarah.corcoran@lacawac.org)

Gene Shultz, Environmental Educator, [gene.shultz@lacawac.org](mailto:gene.shultz@lacawac.org) \* Roy Chessari, Facilities Manager, [stewardship@lacawac.org](mailto:stewardship@lacawac.org)

Sean Mauder, Bookkeeper, [finance@lacawac.org](mailto:finance@lacawac.org)