

Deer and Healthy Forests

by Susan Stout and Jim Finley



What defines a healthy forest? This is certainly an issue of debate. As we write this article, fires rage across the western landscapes of America. California is ablaze. Congress has just rushed through legislation calling for forest harvesting and fuel reduction, hoping to restore forest health. Years of fire suppression has allowed excessive fuel buildups and exotic flammable eucalyptus trees imported from Australia add to the fire risk. Few people are arguing that these western forests are healthy.

What about our forests in Pennsylvania? Are they healthy? The problems here are much different from those in the West. Fire, a minor problem in our forests, is not the issue. Our forests have many very different health issues. In the minds of many forest managers, foresters, and environmentalists white-tailed deer are a driving forest health issue.

Deer - Changing the Landscape

For all too long, white-tailed deer in Pennsylvania have been in excess of their cultural carrying capacity. This means, that while deer continue to occur in relatively large numbers across the state and are not dying of starvation, they are changing their habitat in ways that are unacceptable to human values. It is a proven fact that deer are reducing wildflower abundance and diversity, forest regeneration is difficult to obtain, songbird habitat has

been changed, and invasive and interfering plants are increasing rapidly in the forest.

It isn't difficult to arouse debate about white-tailed deer. It is one of the principle species managed by the Pennsylvania Game Commission, and through much of the twentieth century the management objective was to maximize huntable deer populations. Too often, when a more habitat-sensitive policy was adopted, it was abandoned after a short time.

In the past few years the state's wildlife managers have begun serious efforts to reduce deer populations, bringing them more into balance with their habitat. Despite these efforts some hunters argue that deer populations are already too low, that we don't need to reduce numbers further. Other hunters have a keen appreciation of the importance of healthy habitat to the future of deer and deer hunting, and still others are grateful for the increased hunting opportunities that changed deer management policies have brought to the commonwealth.

For too long deer populations have been sustained at levels that have damaged habitat. In fact, some of the state's hunters have never seen deer populations as low as they now are in some areas and these same hunters have never seen healthy forest habitat. Where forests are healthy there is an understory of shrubs and trees, there is

vertical structure to the forest where seedlings grow into saplings, poles and finally, eventually, into the canopy.

Today across much of the state, wildflowers of some species are rare. Some species only occur where fences artificially exclude deer or on top of rocks where soil is deep enough and deer are unable to reach. Some shrubs, like witch hobble, native yew, and hazelnut have nearly been extirpated, becoming increasingly less common in our forests.

Then...

A hundred years ago, when the forests of Pennsylvania were harvested heavily for the timber products our growing nation needed, white-tailed deer populations were similarly exploited. In the late 1890s and early 1900s, deer were imported to buoy the population and to increase breeding stock. Limitations on hunting – what we know now as “Deer Seasons” – were implemented and market hunting was curtailed.

The new forests that now dominate our state's landscape were established when deer numbers were low. In fact, estimates are that between 1907 and 1923, the state's deer population doubled every two years. So by the mid-1920s there was recognition that deer were exploiting their habitat.

And Now...

Today, the evidence of excessive deer populations is starkly apparent. Our forest is maturing and harvesting is on the increase. Recent US Forest Service data collected from across the state find that regeneration to replace forests is inadequate. The data suggest that in only 17 percent of those stands cut to a level where regeneration should occur have sufficient seedlings to replace the forest when deer populations exceed 20 deer per square mile. If deer populations drop below this threshold, 38 percent of the inventory sites have sufficient regeneration.

Other data collected by the Forest Service indicate other problems. The data document shifting tree species composition. Red maple has been the most common tree species in the state for the past 25 years. However, black birch, a less-preferred deer browse species, has moved from number five to number two in the past 17 years, and black cherry, another non-preferred species, has moved from number two to number three. Oaks, some of the most preferred browse species, continue to decline, now hold the numbers nine (red oak), ten (chestnut oak), and twelve (select white oaks).

These shifts in species composition and the evidence of poor regeneration conditions are reasons for concerns. Further indicators of forest health are the rapid expansion of ferns, mountain laurel, blueberries, and other native and exotic species in the forest understory. Most often, these species occupy niches that would normally support forest tree seedlings, shrub species, and wildflowers. Many times the impact of deer can be demonstrated by erecting exclosures. If you've not visited an exclosure, do so soon and observe how quickly the exclusion of deer allows plant composition to change.

A Hunting-Forest Connection

We need to carry on a dialogue about healthy forests and the impacts of deer. The debate will continue in Pennsylvania – *that is for sure!* Reducing deer populations far enough and long enough to restore forest health will not be easy. While we've talked some about deer densities, this is really not the issue. We need to argue for forest health. Today, many hunters understand Quality Deer Management, which focuses on deer health and size. We need to expand this discussion by talking about Healthy Forest Ecology –

the restoration of forests to a condition where they are self-sustaining and have the mix of plants that represent the forest's full potential for diversity.

This process is as important for the long-term future of hunting as it is for the long-term future of the forest. There is growing evidence that in those parts of the state where deer have been overabundant the longest, and where forest understories are now completely dominated by plants that deer don't prefer or won't eat, deer populations have decreased in response to the poor habitat that deer have created. This makes a paradoxical situation in which deer populations have to be temporarily lowered even further to allow recovery of the habitat in order to restore both the deer population and the habitat on which it depends.

Only by restoring working forest ecology can we have healthy sustainable deer populations. We owe it to future generations.

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2004 Rambles Announced



**Sproul State Forest
Tree Planting
April 23-25**

**Canoe Ramble
W. Branch-
Susquehanna**

**Williamsport to Muncy
May 21-23**

**Horseback &
Covered Wagon Ride
Tioga State Forest
June 22**

**Elk Watch
September 12 & 13**

**Details & Reservations :
PFA Office - (717)766-5371**

Each year, the Pennsylvania Forestry Association sponsors a series of outings open to members and their families. The outdoor excursions are priced at cost and generally attract a variety of ages. Information packets on each event include details, directions, estimated costs, rental availability (e.g. canoes) and other information. Reservations are required so that adequate supplies can be purchased.