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WHITETAILS ARE CHANGING OUR WOODLANDS

By STEPHEN B. JONES, DAVID deCALESTA, and SHELBY E. CHUNKO

One of wildlife management's great success stories is turning sour as too many deer eat their habitat away and stir the emotional juices of those who love them.

"Is Bambi Hogging t he Forest?"

This headline from a January 1993 article in the *Washington Post* gets to the heart of scientists' concern that browsing by an overabundance of whitetail deer is inhibiting forest growth and reducing the diversity of plant and animal species. The ar:icle cites an excessive deer population in Virginia C...probably five times as large as it was when European settlers arrived."), but in fact the problem extends throughout the eastern temperate hardwood forests from southern New England through the mid-Atlantic states and westward to the Crest Lakes region.

From the *Post:* "Recent studies of whitetail deer in the eastern deciduous forest demonstrate that :here can be too many deer, and that their feeding has major impacts on forest vegetation and wildlife. But the general public and deer hunters do not understand this impact. This lack of understanding greatly impedes support for the only viable solution to the problem of too many deer, which is to reduce deer populations to the point where they no longer endanger forest resources."

The task as we see it, however, is not to find a way to reduce deer populations (there are solutions, which we'll talk about later). It is

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Who can resist the sight of *a spotted fawn in sun-dappled woods? But Bambi and his brethren in some areas are driving out such fellow forest dwellers as snowshoe rabbits, wild ginseng, and the valuable black cherry.*

have found that deer can indeed eliminate the seedlings and saplings of woody plants they prefer for forage, causing shifts in species composition of future forests. Where deer density exceeds 20 per square mile, preferred plants such as sugar maple, white ash, yellow poplar, hemlock, pin cherry, oak, and aspen are eliminated. The plants that are left—black cherry, beech, striped maple, pricky ash, and the tree of heaven or ailanthus—grow into species-poor forests. An old-growth forest grove in northwestern Pennsylvania called Heart's Content supported 27 woody tree and shrub species in the understory in the 1920s, when deer density was less than 20 per square mile. Today, after 70 years of browsing by a deer herd that has averaged over 40 per square mile, only 11 woody species are left in the understory.

By their continued browsing even on non-preferred woody plants, deer also reduce the rate at which trees grow from saplings into mature trees. Scientists in Pennsylvania found that trees inside fenced plots, protected from deer, were twice as tall as those outside after only five growing seasons. The impact of deer on tree height began at between 10 and 20 deer per square mile.

FERNS, FLOWERS, AND SHRUBS

These plants of the forest floor, together with grasses, sedges, and mosses, comprise vital habitat for numerous wildlife species, and form a major part of the forest vegetation that appeals to many private landowners, resource managers, and nature lovers.

At densities over 20 per square mile, the effect of deer on these plants is the same as on tree seedlings: Some species are eliminated, abundance and size of others are reduced, and overall composition changes.

Fewer shrubs and wildflowers means more growing space for the less palatable ferns, grasses, and sedges, which can monopolize the understory. Too many ferns and grasses will inhibit the growth and survival of tree seedlings. On sites subjected to high deer densities for decades, sometimes the only thing growing at ground level is ferns. If trees there are harvested or blown down, no forest will replace them—only fields of ferns and grasses.

In a number of parks and refuges in the Northeast, deer densities in excess of 50 per square mile are eliminating *all* ground vegetation, including threatened and endangered plants.

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The whitetail's inroads on other forest dwellers is a primary concern of Brad Nelson, a wildlife biologist for Pennsylvania's Allegheny National Forest.

"When a high deer herd decimates the shrub layer," he notes, "we lose nesting sites for forest songbirds, a winter food source for turkeys, and protective cover for ruffed grouse and black bears. I think all of us who enjoy the outdoors have at least one thing in common—we want healthy, diverse forests with abundant wildlife for our children and grandchildren to enjoy. Future generations won't have healthy forests to enjoy if deer herds remain above what the habitat can sustain."

Forest Service researchers in New England noted that high deer densities were associated with irreversible shifts in composition of some small mammal species, and a few species were lost. Similarly, researchers in Pennsylvania found that at deer densities above 20 per square mile, habitat for songbirds that nest from the ground to about 25 feet above the ground has been greatly reduced. Some of those species—the least flycatcher, wood peewee, and cuckoo—are no longer found. Additionally, abundance of songbirds generally has been reduced by about 20 percent.

Deer themselves are impacted when their numbers get out of whack. Herd health and resistance to parasites and disease decline with increases in deer density. Deaths by starvation increase.