High Deer Herd Density

Adds to Climate Change Concerns

Forest Harm, Flood Risk, Heat Stress, Tick-Borne Illnesses

In many areas of New Jersey, deer numbers have been measured at 10 times what native forests evolved to handle. ***(1)***

A combination of human land uses (which allows more sunlight to stimulate rapid growth of food that deer prefer), a year-round landscaping buffet, and a decline in human hunting in recent decades, have combined to increase deer numbers in many places. ***(2)***



As a result of very high deer numbers, many of New Jersey's forested areas are in steep decline, as deer herds eat young native plants more quickly than they can regrow. ***(3)***

This trend has troublesome implications for climate change (carbon sequestration) and climate change impacts such as flood risk (and strain on stormwater systems), soil instability (and landslide susceptibility), heat stress, and increases in tick-borne illnesses in people (which adds to disease vector changes due to climate change).

Climate Change (carbon sequestration). Research is increasingly indicating that excessive deer herbivory can substantially reduce forest carbon sequestration by suppressing tree regeneration, reducing woody biomass accumulation, altering forest composition, and changing soil carbon dynamics. Experimental deer-exclosure studies have documented significantly higher carbon accumulation in forests protected from browsing, while recent climate-forestry research increasingly recognizes deer overabundance as a constraint on climate-smart reforestation and long-term carbon storage. ***(4)***

Flood Risk. There is a strong and growing body of research showing that excessive deer herbivory removes understory vegetation and tree regeneration, increases soil erosion, reduces forest floor protection, and increases sediment delivery to streams—all mechanisms known to increase stormwater runoff and flood vulnerability. ***(5)***

Heat stress. Excessive deer browsing removes shrubs, wildflowers, and tree regeneration. This simplifies the forest understory and reduces vegetative cover. Reduced cover increases light penetration to the forest floor, raising near-ground temperatures and creating hotter, drier microclimates—essentially a localized forest-floor heat-island effect. Several studies and reviews document this relationship. For instance, Rooney & Waller (2003), notes that when ungulate browsing reduces vegetative cover in the forest understory layer, the forest floor microclimate is altered. Soil moisture and humidity decline, while temperature and light increase. ***(6)***



Tick-borne illnesses in people. The scientific literature generally supports the conclusion that high densities of white-tailed deer increase human exposure to tick-borne diseases in the eastern United States, although the relationship is not perfectly linear and deer are not themselves the primary reservoir for Lyme disease bacteria. The strongest evidence is that deer are the primary reproductive host for adult blacklegged ticks (*Ixodes scapularis*), the vector of Lyme disease, anaplasmosis, babesiosis, and several other diseases. More deer generally allow more adult female ticks to obtain blood meals and reproduce, leading to larger tick populations. ***(7)***

Lone star ticks are even more connected to deer than blacklegged ticks, especially with their range expansion likely due to climate change and high numbers of deer. All stages of lone star ticks feed on deer, rather than just the adults for blacklegged ticks, and they are linked to alpha gal syndrome (allergy to red meat and even, in some cases, products with trace amounts of animal products in them, such as pharmaceutical capsules). ***(8)***

Furthermore, the effect of high deer density combines with global warming's impact on disease vectors, increasing the human health risks. ***(9)***

By stewarding deer herds responsibly, we can also: ***protect*** native forests and plant and animal diversity, ***reduce*** high levels of deer-vehicle collisions, ***defend*** local farms and food production from excessive herd damage, ***provide*** high quality affordable food to New Jersey families and people in need, and ***support*** the health of deer herds.

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Further Reading

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(8) Lone star ticks (*Amblyomma americanum*) are more closely associated with white-tailed deer than blacklegged ticks because all three active life stages (larva, nymph, and adult) commonly parasitize deer. Lone star ticks are the principal cause of alpha-gal syndrome (AGS) in the United States, an allergy that can be triggered by red meat and, in some individuals, dairy, gelatin, certain medications, biologic drugs, and other mammalian-derived products. **James E. Childs & Christopher D. Paddock (**2003). "The Ascendancy of *Amblyomma americanum* as a Vector of Pathogens Affecting Humans in the United States." Annual Review of Entomology. **Jerome Goddard & Andrea S. Varela-Stokes.** (2009). "Role of the Lone Star Tick, *Amblyomma americanum* (L.), in Human and Animal Diseases." Veterinary Parasitology. **Scott P. Commins, Thomas A. Platts-Mills, et al.** (**2022**). "The Meat of the Matter: Understanding and Managing Alpha-Gal Syndrome." Journal of Asthma and Allergy. **Thomas A. E. Platts-Mills and colleagues.** (**2025**). "The Alpha-gal Syndrome: Understanding the Role of Tick Bites, and the Delays in Severe Anaphylaxis." **Baker et al. (2024**). "Feeding and Reproductive Parameters of Adult Female *Ixodes scapularis* and *Amblyomma americanum*. Parasitizing White-tailed Deer (*Odocoileus virginianus*)." Journal of Medical Entomology. **Molai et al. (2019).** *Bracing for the Worst — Range Expansion of the Lone Star Tick in the Northeastern United States. New England Journal of Medicine.* ***CDC. (2026).*** *Lone Star Tick Surveillance.* CDC Website. **Higuita et al. (2021).** *The expanding spectrum of disease caused by the Lone Star Tick, Amblyomma americanum*. Infez Med. **Jahagirdar, Vinay, MD (2025).** *Explosive Rise in Alpha-Gal Syndrome: A Real-World Analysis*. Virginia Commonwealth University Medical Center.

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Mission: To achieve natural balance in New Jersey by leading a deer stewardship movement for the people, wildlife and land we love.

Vision: A future where New Jersey's land, wildlife, and communities thrive in natural balance—stewarded by the people who call this place home

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