

The Outside Story

Oh, Dear! How Deer Contribute to the Spread of Invasives

By Jen Weimer

A winter walk in the forest reveals a flurry of wildlife activity that often goes unnoticed during other times of the year. Often among the many tracks in the snow are the nearly heart-shaped prints of deer. The white-tailed deer (*Odocoileus virginianus*) is common throughout the United States, with an estimated population of 30 million nationwide. In the Northeast, numbers range from roughly 100,000 deer in New Hampshire to 133,000 in Vermont and more than



300,000 in Maine. Deer are an important part of the ecosystem, but their foraging behavior can wreak havoc in forests, where browsing may contribute to the spread of invasive plants – and decrease species diversity.

Deer are herbivores and feed on acorns, beechnuts, and green vegetation including woody plants. One animal can consume up to nine pounds of food per day, and deer will forage urban backyards when food is scarce, making them a pest in some areas. Deer can live almost anywhere, but do best in areas with a combination of fields and forest. In the north – where winters are harshest – they populate forested valleys with areas of dense conifers that provide cover.

Some of these conifers such as hemlock, fir, and pine are at risk from invasive forest pests, including hemlock woolly adelgid, balsam woolly adelgid, and red pine scale. Deer can spread these pests from one place to another as they move through infested areas and pick up eggs and crawlers on their fur.

Deer can also spread invasive plants, directly and indirectly, through their feeding habits. When deer consume the fruit of invasive plants such as multiflora rose, oriental bittersweet, and Japanese honeysuckle, the animals pass the seeds of these fruits in their droppings, allowing the plants to spread to new areas. Even seeds of invasive plants that deer don't eat, such as Japanese stiltgrass, can spread if they are picked up on the animals' hooves and dropped in other areas as deer move through the forest.

Deer avoid eating other invasive species – including glossy buckthorn, garlic mustard, and Japanese barberry – which are either unappetizing or contain thorns which deter foraging. Overbrowsing of native plants in areas with large deer populations enables these invasive species to flourish and displace native species. This change in forest composition negatively impacts the native wildlife species that depend on diverse forests

with native plants. Invasive plants can also create undesirable monocultures when left to spread. Japanese barberry, for example, can become so dense that the plants create a humid environment that favors deer tick populations, thereby increasing the prevalence of Lyme disease.

What can be done to preserve our diverse forests? In the Northeast, deer populations are managed primarily through hunting. The New Hampshire Fish and Game Department, for example, works with the public to develop a 10-year management plan aimed at achieving a desired population level of deer throughout the state. The department monitors deer populations within 20 wildlife management units (WMU) annually throughout the state. Objectives outlined in the plan vary for each WMU, depending on a 2-year average of adult buck kill during the hunting season. Deer harvest is increased by issuing more permits in areas where deer populations exceed the carrying capacity of suitable habitat, impact animal and plant biodiversity, or create too many conflicts with humans. Other states in the Northeast follow similar management practices.

Forest managers should also consider deer populations when managing invasive plants. Studies show that overstory tree species such as maple, oak, and ash benefit when fencing is used to exclude deer from areas of forest regeneration. This is an expensive management option requiring ongoing maintenance, however, and is not always feasible.

Prevention of invasive plants is especially critical in areas with high deer populations. Foresters may employ various management practices to limit the spread of invasives. These include scouting for invasives in advance of a timber harvest, laying out skid trails to avoid areas with invasives, and removing or treating invasives where possible. Operating tactics such as harvesting in uninfested areas first, and moving from lesser to greater infested areas, will also help to limit spread. Lastly, cleaning equipment after a harvest will ensure seeds are not spread to a new site.

With planning and proper management, foresters can help turn deer encounters from “Oh, dear!” to “Oh look, a deer!”

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