

PART FIVE: Deer History, Biology and Management Strategies

History of White-Tailed Deer (*Odocoileus virginianus*)¹

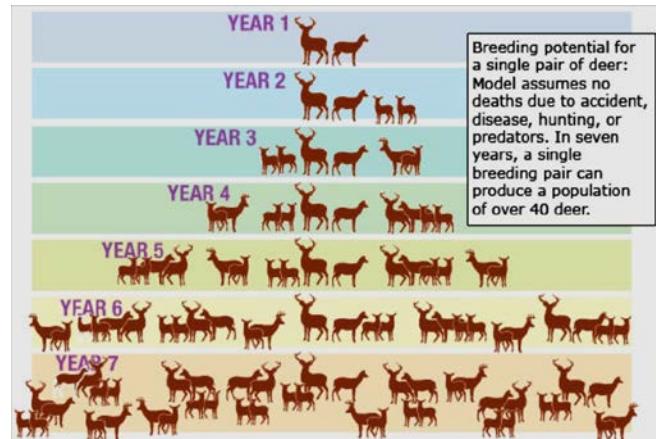
About three to four million years ago, deer evolved in the Pleistocene period, as a small hooved animal hiding in the background along with such giant herbivore and predator mammals as mastodons and saber-toothed cats. White-tailed deer prefer the forests east of the Mississippi, while their close cousins the black-tailed deer have adapted to the arid West. Settlers and native Indians slaughtered deer for venison and the trade in hides during the 1800s, to the point of near extinction.

One of the first acts of the Province of NH in 1679 was to put a bounty on wolves². By the late 1800s the whitetail population in the US reached an all-time low of 500,000; in many states deer completely disappeared. The Lacy Act, adopted in 1900, was the first federal wildlife law, and prohibited the interstate trafficking of venison and other wild game, and finally the exploitation of white-tailed deer slowed. NH established a Fish and Game Department in 1877, and by 1908 41 states had established departments of conservation, further protecting the animals. About this time, most states were also exterminating predators of deer, so that by mid 1900s few wolves and cougars remained in the lower 48 states. As rural families moved to cities in mid-1900s deer increased with the regrowth of abandoned fields, unhindered by natural predators, and soon deer were re-established in areas where they had disappeared.

As deer populations flourished again, hunting was permitted. However, hunting was often only for bucks to encourage growth of the deer herd until 1970 when researchers realized that it was a good idea to take doe, so strictly limited doe-days and 'antlerless' deer seasons were instituted. But, populations continued to rise since our suburban landscapes and fragmented forests made for great deer food. Many states now struggle to reduce their deer herd, with varying levels of success. Some states now permit hunters to take doe and bucks in equal number, with those wishing to reduce the herd now allowing more doe than buck¹. NH and VT are exceptions to this approach.

Some Deer Biology³:

Population growth potential – Deer are highly fecund, as a doe is able to produce a fawn in its first year of life (although this is not very common). An adult doe will produce two and sometimes three fawns. Deer breed in mid November, give birth of 4-6 pound fawns in late May. In good times (good food sources and mild winter) a deer herd has the potential to double in two years if none die, as this chart suggests. The herd can double in very few (but more than two) years, when deaths from hunting, predation, accidents and disease are factored in.



¹ Quality Deer Management reports numerous deer statistics by state for 2015. Page 9 discusses sex ratios by state. http://www.qdma.com/uploads/pdf/2015_WR.pdf

The top herbivore – Considered a ‘keystone’ herbivore because it eats so many types of plants and all their parts. Deer consume grasses, leaves, buds, flowers, seeds and fruits, twigs, shrubs, fungi, and tree seedlings. The diet for one adult deer adds up to more than 5 pounds of vegetation per day⁴. One deer can consume more than a ton of greenery in a year. Deer overabundance is credited for totally altering forest composition⁵ with credit given to the wide range of its plant diet and preferences (see Section [THREE](#) for plant details)

Range - Females stay fairly close to home and have a range of about 140 acres, but young bucks soon leave their mother’s home and range widely, with an average of 300-400 acres. If pressed, a doe could survive in a tiny area, even as small as 4 acres. NH and VT are near the most northern edge of deer range; however, global warming may extend this range north.

Age – Deer rarely reach more than 16 years of age, but even with hunting can reach 12 years. In some states like VT⁶, bucks typically have a very short life span (under six years), and does live much longer.

Traits – Deer are adaptable to many habitats, including those of urban and suburban areas. They have acute senses and keen survival instincts and a remarkable ability to detect movement. Deer are agile and fast: with their thin legs, they can spring away at 40 mph, leap 8’ over trunks and branches from dead trees, shrubs or fences. It doesn’t take them long to realize that it is hunting season, so they move to protected areas.

Antlers – A buck’s antlers growth starts in the spring and are complete by fall, and are shed in the winter. These are used to establish rank, and for fighting (other deer or animals). Antlers have ‘points’ that are often not evenly distributed; antler points aren’t the definitive indicator of age (that needs an inspection of teeth), and their base diameter is an indicator of health.

Size – Does average 100 pounds, bucks average 150 pounds. They are about 36 inches at shoulder.

Winter survival strategy⁷ – After heavy feeding during summer and fall, deer build up a fat layer to help survive the winter. In further preparation for winter, deer shed their sleek rust brown summer coats for a lighter colored winter coat that has hollow fur and undercoat fur that insulates the animal. Fat can comprise 30% of a doe’s body mass. Deer usually gather into larger groups, perhaps 5-10 miles from summer range, to seek shelter in deer-yards, or Deer Wintering Areas (DWA). These yards are typically where there are softwoods like hemlock trees, often near wetlands in valley bottoms, where they are sheltered from wind and deepest snows. The highest quality deer-yard has trees taller than 35 feet tall and the canopy more than 70% is closed. The wintering deer create a shared trail network and prefer hardwood twigs for nourishment. A severe winter can reduce the fawn population by 90%, as they are the most vulnerable to severe cold.



Digging for acorns

Kaibab Plateau⁸ – deer herd collapse, an historical aside

This 1100 sq mi plateau above arid canyonlands of Northern Arizona once had a remarkable mule deer herd. Set aside as a ‘game preserve’ in 1906, deer hunters were banned, and predators exterminated. Over next 25 years, 6000 carnivores were trapped or gunned,

including 800 cougars and the last of its wolves. As the deer herd increased, tree and vegetation was lost and deer were in poor condition. The loss of vegetation led to a drop in the deer herd from an estimated 100,000 to just 4000 in the space of two winters. Similar experiences were observed at Zion National Park Utah, in Wind Cave National Park in South Dakota, and in Jasper National Park in Canada. Western writer Zane Grey outlines the heroic efforts of a futile attempt at Kaibab to herd the deer to another area to avoid starvation in his fictional adaptation of this event in his tale *The Deer Stalker* (published posthumously in 1949).

Managing a Deer Herd and Strategies in Other States

For specific information about deer management, click [here](#).

¹ Stolzenburg, William. 2008 *Where the Wild Things Were: Life, Death and Ecological Wreckage in a Land of Vanishing Predators*. Bloomsbury. See the chapter titled 'Bambi's Revenge'. Available at Howe Library.

² Bergeron, Dan. 2014. [NH White-Tailed Deer Assessment 2015](#). Page 16.

³ Several sites have information about the biology of deer. One, developed by an avid hunter, is simply called The Whitetail Deer has descriptions of the yearly changes for doe, buck and fawns, hunting tips and much more information such as links to hunting policy for all states. Link: <http://www.the-whitetail-deer.com/index.html>

⁴ The Foremost Hunting.com website, has many facts about game animal biology and hunting tips. Food facts are found at <http://www.foremosthunting.com/Deer/Library/Whattowhitetaildeereat/tabid/943/Default.aspx>

⁵ Waller DM, Alverson WS. 1997. *The white-tailed deer: A Keystone Herbivore*. Wildlife Society Bulletin, 25(2): 217-226 Considered a classic article on this topic. <http://www.jstor.org/stable/3783435>

⁶ [Vermont Deer Plan, Chapter 2](#), page 17, figures 2.4 and 2.5 show graphs for ages of 10,300 male white-tailed deer from 1995–2004 as determined by Vermont biologists at check stations during the opening weekend of rifle season and 427 female white-tailed deer from the 2003–2006 harvest.

⁷ Wiley, Joe and Hulsey, Chuck. 2010. *Living on the Edge: How Deer Survive Winter*. Maine Dept of Inland Fisheries and Wildlife. LINK: https://www1.maine.gov/ifw/hunting_trapping/pdfs/deer_yards.pdf

⁸ Stolzenberg, Mark. *Where the Wild Things Were*. Page 158.