



White-tailed deer

Resource Brief

Importance

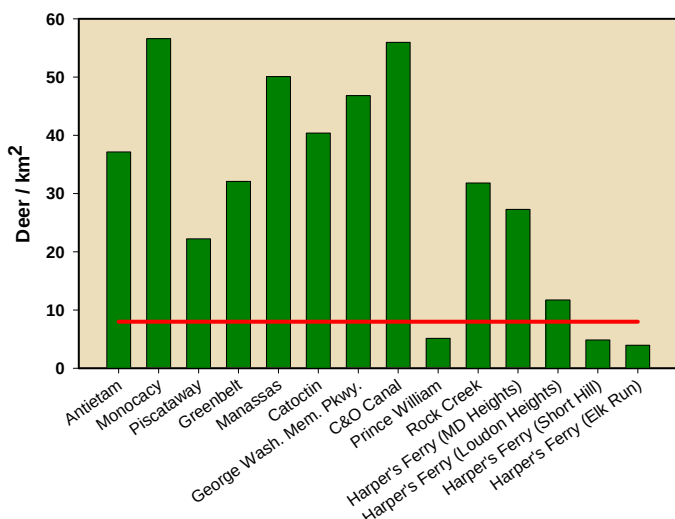
White-tailed deer (*Odocoileus virginianus*) are a primary stressor on forests. Fire suppression, the rapid spread of exotic plants and overabundant deer populations work together to alter the regeneration, and hence, the natural successional pathways of the forests in the region.

After the near extirpation of deer early in the 20th century, public agencies began intensively managing deer populations; governments established laws to regulate the hunting of deer, and large predators were eliminated. More recently, improved silvicultural techniques, fragmentation of forests for suburbs and abandonment of agricultural lands led to increases in available forage for deer. These actions along with recent declines in hunting in suburban areas left deer populations to grow unchecked. These now overabundant deer populations are promoting a host of negative impacts on the structure, composition and dynamics of the eastern deciduous forests.

Status

Deer densities may now be at historically high levels. Pre-European estimates of deer densities in the eastern U.S. ranged between 3.1 and 4.2 /km² in optimal habitats. Today, examples of deer populations exceeding 20/km² are commonplace.

At densities exceeding 8 deer/km², deer create negative impacts on vegetation (red line in figure). Our monitoring currently shows that 10 parks in the NCRN exceeded this threshold in 2007 (see figure below). Our monitoring also shows that many parks have fewer seedlings than would be expected.



NPS photo by Tom Paradis

Discussion

Deer alter forest composition and succession by inhibiting the regeneration of preferred species like oaks and hickories and thus allowing less palatable species to dominate. Less palatable plants — ferns, grasses, *Vaccinium* spp. and mountain laurel — spread and create extensive ground cover that further inhibits regeneration of woody and herbaceous species. Deer reduce or eliminate populations of many forest herbs by stifling growth and reproduction and they have been shown to reduce understory diversity.

Deer consume shrubs which reduces populations of forest nesting birds by eliminating nesting habitat. Deer cause declines in populations of small mammals by reducing the availability of seeds and nuts. By altering the plant community composition, they have been shown to alter insect community composition. They cause significant damage to private property such as landscaping, vehicles or woodlots. They reduce crop yields and damage plant nurseries and orchards. Deer have been linked to higher numbers of ticks which may lead to increases in diseases such as Lyme's disease. They carry and spread chronic wasting disease. They can alter availability of nutrients in the soil and ultimately, overbrowsing can reduce or eliminate abundance or preferred plant species and in some cases populations of these plants do not recover even if deer numbers are reduced.

Deer may be causing significant impacts in the National Capital Region Network and for this reason are a primary management concern for the parks throughout the region.

