



Deer culls are not effective for forest protection

Hunting is not an effective tool for reducing damage caused by deer to managed forests in Europe, according to a recent assessment. Forests will be better protected through 'close-to-nature' management techniques, says the study, which evaluated the effects of different control mechanisms on deer populations and behaviour, including the influence of wild predators, such as wolves, and forest structures.

Wild deer have greatly increased in number over the years, owing to increasingly mild winters, and changes in forestry and hunting practices and the agricultural landscape. Their foraging reduces regeneration in managed forests, causing economic as well as ecological damage. Hunting, the main method used to control numbers, can be effective on a local level, or even on a wider scale if well coordinated, but there is limited evidence from existing studies that it works on a large scale. Deer populations are strongly increasing throughout Europe despite widespread culling.

The study, supported by the EU BIORESC¹ and INTACT² projects, conducts a detailed assessment of available evidence on Roe and Red deer in temperate forests. Large natural predators, such as wolves and lynx, are one potential influence on deer behaviour, but these have been eradicated from most of Europe. There is much debate surrounding the idea of reintroducing these creatures to parts of Europe to help rebuild historic ecosystems.

Large carnivores have been proven to help control the effects of deer on tree regeneration, not only through predation, but also by creating a 'landscape of fear', which influences deer behaviour, habitat choice and distribution. While humans can hunt, they only partly substitute carnivores' effects and create a very different landscape of fear. For example, wolves have a wide range, (200km² on average in Poland, for example), and hunt all year round. Humans, on the other hand, hunt in isolated patches, for only part of the year and typically at weekends. The deer's sense of fear is therefore weaker and they often learn to avoid certain places or times. However, evidence from Poland, where wolves are present, suggests that the effects of natural predators on deer population size are relatively small in comparison to other environmental factors, such as climate, which influences plant growth and food abundance. While forest managers should not ignore predator effects, they should instead look to the vegetation and structure of forests, especially in the absence of predators.

The study argues that the nature of modern forestry itself encourages the damaging effects of deer. Natural temperate forests have a range of deciduous trees and other plant species, of various ages, and gaps in the canopy are small, where trees have naturally fallen. Modern commercial forests tend to be coniferous monocultures, even-aged, with large gaps where sections of woodland have been harvested. Deer prefer to forage in forest gaps where the light allows more vegetation to grow. Large gaps found in managed forests thus encourage more concentrated deer numbers and intense foraging. This concentrated damage can be reduced by introducing a large number of small gaps, instead of a few large gaps. Where available, deer also prefer eating deciduous trees, which studies suggest may be more tolerant to foraging and regenerate more successfully than coniferous trees. Planting only economically attractive coniferous species will make a forest more prone to damage by deer.

While it is still unclear whether more natural mixed forests could be more economically attractive than monocultures, ecosystem-oriented forest management effectively minimises damage caused by deer, says the study, mainly through natural control mechanisms that reduce deer's effects. Previous research in Denmark has demonstrated that forests with close-to-nature management suffer less from the impacts of deer, even if deer numbers are high. These recommendations are also relevant to the control of other 'ungulate' (hoofed) species, such as wild boar.

1. BIORESC (Transfer of Knowledge in Biodiversity Research and Conservation) was supported by the European Commission under the Sixth Framework Programme. See: http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_RCN=9775279
2. INTACT (INTERacting effects of Abiotics and Carnivores shape herbivore Top-down effects) is supported by the European Commission under the Seventh Framework Programme. See: http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&ACTION=D&DOC=1&CAT=PROJ&RCN=95890

Source: Kuijper, D.P.J. (2011) Lack of natural control mechanisms increases wildlife-forestry conflict in managed temperate European forest systems. *European Journal of Forest Research*. 130:895-909. This study is free to view at: www.springerlink.com/content/I36851555w005684/

Contact: dkuijper@ibs.bialowieza.pl

Theme(s): Biodiversity, Forests

The contents and views included in Science for Environment Policy are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

To cite this article/service: "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.