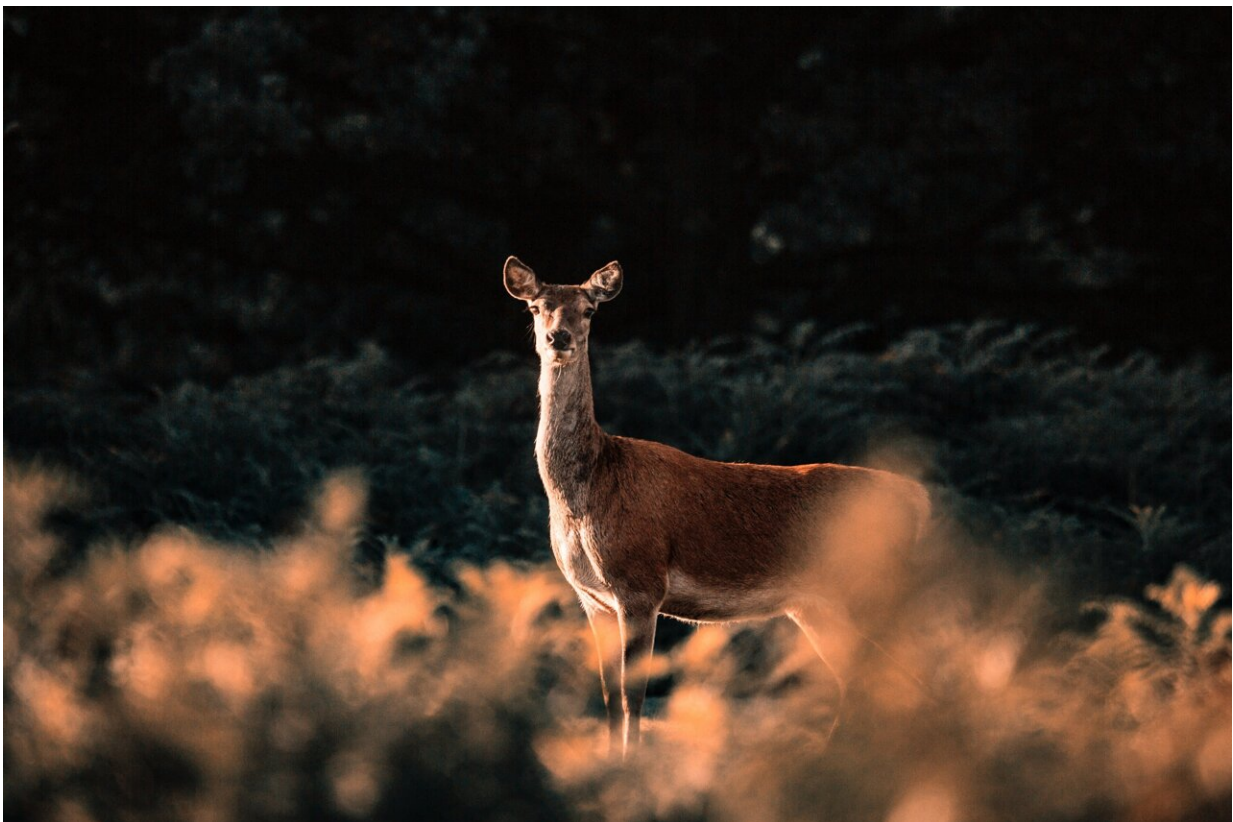


# Red deer populations in Europe more influenced by humans than by wolves or other predators, ecologists find

January 10 2024

---



Red deer hind in the morning. Credit: Unsplash/CC0 Public Domain

Alongside the occasional bison and elk, red deer are Europe's largest native wild animal. An international study led by wildlife ecologists from

the University of Freiburg has now investigated the factors that affect the red deer population in a particular area. The researchers were able to show that the population density of the animals in Europe is primarily influenced by human hunting and land use and not by large predators such as wolves, lynx and brown bears.

"While large carnivores are often considered key factors in controlling prey populations in undisturbed ecosystems, this is less visible in human-dominated landscapes. Our study illustrates that these interactions are context-dependent," says Dr. Suzanne T. S. van Beeck Calkoen, former Ph.D. student at the Chair of Wildlife Ecology and Management at the University of Freiburg and first author of the study [published](#) in the *Journal of Applied Ecology*.

The researchers collected data on the population density of [red deer](#) at over 492 study sites in 28 European countries and analyzed the influence of various factors such as habitat productivity, the presence of large carnivores, human activities, climatic variables and the protection status of the area. The evaluation of the data showed that human hunting reduced red deer density more than the presence of all large carnivores.

Human land use, on the other hand, led to an increase in red deer density. In most cases, the presence of large carnivores had no statistically significant effect on the red deer population. Only when the three predators wolf, lynx and bear occurred together in one area did the number of red deer decrease. However, the study did not investigate how the presence of predators affects the behavior of red deer.

## **The return of the wolf**

The study also sheds new light on the ongoing debate about the return of the wolf to Central Europe, notes Prof. Dr. Marco Heurich, Professor of Wildlife Ecology and Conservation Biology at the Faculty of

Environment and Natural Resources at the University of Freiburg and initiator of the study.

"Our research shows that the return of a large carnivore such as the wolf alone does not have a major impact on the occurrence of red deer. This is because in Central Europe, human influences predominate both indirectly through interventions in the red deer's habitat and directly through the killing of the animals."

In addition, the mortality rate of wolves in Central European landscapes is very high, mainly due to [road traffic](#), which further limits their influence on prey populations. "However, we also found a high variability in red deer densities, which indicates that there may be specific situations in which [large carnivores](#) do have an impact. Investigating this will be the task of future studies," states Heurich.

**More information:** Suzanne T. S. van Beeck Calkoen et al, Numerical top-down effects on red deer (*Cervus elaphus*) are mainly shaped by humans rather than large carnivores across Europe, *Journal of Applied Ecology* (2023). [DOI: 10.1111/1365-2664.14526](https://doi.org/10.1111/1365-2664.14526)

Provided by Albert Ludwigs University of Freiburg

Citation: Red deer populations in Europe more influenced by humans than by wolves or other predators, ecologists find (2024, January 10) retrieved 29 April 2024 from <https://phys.org/news/2024-01-red-deer-populations-europe-humans.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.