



## Press Release

### Early humans influenced the availability of meat and scavenging animals

**Research team from the Senckenberg Centre for Human Evolution and Palaeoenvironment at the University of Tübingen investigates relationship dynamics in ecosystems 130,000 to 20,000 years ago**

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A new study indicates that human behavior around 45,000 to 29,000 years ago contributed to a change in the composition of scavenging animal species living nearby. While smaller scavenging animals such as foxes and some bird species benefited from the presence of humans, large scavengers such as hyenas and cave lions tended to be displaced. This was the finding of a comprehensive analysis of data from archaeological sites in Europe conducted by Dr. Chris Baumann from the Senckenberg Centre for Human Evolution and Palaeoenvironment at the University of Tübingen, Dr. Andrew W. Kandel from the University of Tübingen and Dr. Shumon T. Hussain from the University of Cologne. The study has been published in the latest edition of *Quaternary Science Reviews*.

Many carnivores consume prey they themselves catch; yet the additional consumption of carrion is often neglected when considering food chains and networks. "Early humans, more than 30,000 years ago, did not live in isolation from the animal world; they were integrated into a network of relationships with scavengers," says Chris Baumann. From today's perspective, it is difficult to understand how the different species influenced each other.

#### Comprehensive data

To find out more, the researchers used the ROAD database compiled by the research center ROCEEH (The Role of Culture in Early Expansions of Humans), a collaboration between the University of Tübingen, the Senckenberg Nature Research Society and the Heidelberg Academy of Sciences and Humanities. The database comprises finds from 2,400 pre-historic sites in Europe, Africa and Asia. The researchers focused on

**University of Tübingen**  
Public Relations Department

**Christfried Dornis**  
Director

**Janna Eberhardt**  
Research reporter  
Phone: + 49 7071 29-77853  
janna.eberhardt[at]uni-tuebingen.de

presse[at]uni-tuebingen.de  
www.uni-tuebingen.de/aktuell

**Senckenberg Nature Research Society**  
Press Office

**Sabine Wilke**  
Director

**Judith Jördens**  
Press & Social Media  
Phone +49 69 7542 1434  
judith.joerdens[at]senckenberg.de

pressestelle[at]senckenberg.de  
www.senckenberg.de/presse

zooarchaeological data obtained from animal remains at sites in Europe that were once inhabited by humans.

“We assume that when hunting early humans killed more animals than they themselves consumed, so that more carrion became available,” says Baumann. “Initially, this benefited large scavengers,” he adds. He says that in the period between around 130,000 and 60,000 years ago the relationship between humans and scavengers became less competitive. However, humans also made sure that large predators did not come near their settlements. “Small scavengers such as foxes, ravens or crows posed no danger, so they were probably tolerated,” says Baumann. “The situation is similar today in urban environments, where we tolerate foxes and raccoons, but not wolves.” He believes a particular dynamic developed in the relationship between humans and scavengers in the period between around 45,000 and 29,000 years ago, and that there was a radical change.

### **Displacement of large species**

“Our analysis showed that during this period, the late Pleistocene, the large scavengers began to be displaced in favor of smaller species, some of which even benefited from living with humans,” says Shumon Hussain. Archaeological evidence from the period also points to this. The upheaval may also have had something to do with the fact that the first populations of modern humans, *Homo sapiens*, appeared in Europe during this period and displaced the last European Neanderthals. “Humans further developed their skills and hunted so many animals that significantly more energy became available in the food web,” adds Baumann. This led to behavioral adaptations and evolutionary changes in the scavenging animals, while humans themselves also developed new ways of colonizing the landscape. As a result, they helped to shape ecosystems, which in turn may have had an influence on human evolution itself.

### **Publication:**

Chris Baumann, Andrew W. Kandel, Shumon T. Hussain: Evidence for the catalytic role of humans in the assembly and evolution of European Late Pleistocene scavenger guilds. *Quaternary Science Reviews*, <https://doi.org/10.1016/j.quascirev.2024.109148>

### **Contact:**

Dr. Chris Baumann  
University of Tübingen  
Faculty of Science – Biogeology  
Senckenberg Centre for Human Evolution and Palaeoenvironment (SHEP)  
Phone +49 7071 29-78900  
[chris.baumann@uni-tuebingen.de](mailto:chris.baumann@uni-tuebingen.de)