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Press release

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Northeastern Europe has only been 'stork country' for a few centuries

Schleswig. A joint study by the Leibniz-Zentrum für Archäologie (LEIZA) and NABU reveals that the white stork only migrated to northern Germany around 1,000 years ago. Until then, the bird was primarily found in southern Europe and the western Mediterranean region. The researchers discovered that the spread of the stork coincided with medieval land development and the creation of new agricultural areas. The findings provide valuable insights for nature conservation and archaeology, as they also offer conclusions about the interplay between human intervention in nature and the distribution of animal species.

Joint press release of the Leibniz-Zentrum für Archäologie (LEIZA), the NABU and the ROOTS Cluster of Excellence

In legends and fables, it brings luck, children and prosperity. Today, its appearance is seen as a sign of an healthy environment. Hardly any other bird in Europe has such positive connotations as the white stork Ciconia ciconia. But how old is this close relationship between humans and storks? Where and how was this relationship formed? "In order to answer these questions, we first need to know when the stork used to live, and where," says archaeologist Dr. Ulrich Schmölcke from the Leibniz-Zentrum für Archäologie in Schleswig (LEIZA).

Together with ornithologist Kai-Michael Thomsen from the Michael Otto Institute within NABU, and the support of the ROOTS Cluster of Excellence at Kiel University, he has investigated the range dynamics of the white stork in Europe since the last ice age using archaeological finds for the first time. "This shows that the north-east of the continent, with its high population density today, only became part of the white stork range in the comparatively recent past," explains Thomsen. The study has now been published in the international Journal of Ornithology.

For the study, the two authors evaluated previously published finds of bird bones in the vicinity of prehistoric or early historic settlements. One set data of published in 1999 alone contains information on more than 7500 archaeological sites with animal

remains from the last ice age to the early modern period throughout Europe. The two authors have added more recent finds from current research literature. "Thanks to this extensive database, we can make reliable statements about the distribution of the white stork over the past millennia," says Ulrich Schmölcke.

According to this, until 1500 years ago, Ciconia ciconia was distributed exclusively in southern and western Europe, especially on the Iberian Peninsula, in the Upper Rhine region and in the southern Balkans. "At the end of antiquity, the distribution boundary of the white stork coincided exactly with the extent of the Roman Empire. Ancient written sources show that it was already closely associated with people in the Mediterranean region at this time," explains Dr. Schmölcke.

Beyond the borders of the Roman Empire, however, the white stork did not find any suitable habitats. The human population density was significantly lower. There were fewer open spaces, as agriculture was less intense.

"It was only around 1000 years ago that the white stork's range expanded rapidly to the north-east. This coincides with the medieval 'Landesausbau', when many forests were cleared and new agricultural land was created," says Thomsen. "Apparently the white stork is a long-term beneficiary of certain man-made landscape changes."

The study provides important insights for both nature conservation and archaeology. "If we want to understand how species spread or why they disappear from some areas, we can't just look at the current pattern. We also need to understand the long-term developments," says Kai-Michael Thomsen.

"Both at LEIZA and in the ROOTS Cluster of Excellence, we are investigating how the relationship between humans and the environment has developed over the past millennia. In order to do this, however, we need to know what the environment looked like in the past and which species occurred where," adds Schmölcke.

Further research into other species is still necessary. "But the study does show the great potential of cooperation between ornithology and archaeology, especially if we include even more analytical methods such as genetics and isotope measurements in future," emphasizes the archaeologist.

Reference:

Schmölcke, U., Thomsen, KM. Prehistorical and historical occurrence and range dynamic of the Eurasian Spoonbill (Platalea leucorodia) and the White Stork (Ciconia ciconia) in Europe. J Ornithol (2024). https://doi.org/10.1007/s10336-024-02206-8

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- The LEIZA: www.leiza.de
- Michael Otto Institute within NABU (The Nature And Biodiversity Conservation Union): https://bergenhusen.nabu.de/
- The ROOTS Cluster of Excellence: www.cluster-roots.org

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Leibniz-Zentrum für Archäologie (LEIZA)

As a Leibniz Research Institute and Museum for Archaeology, LEIZA researches humans and their development on the basis of material remains from three million years across time and space. The fundamental knowledge gained from this helps us to better understand human behaviour and actions and the development of societies. In this way, LEIZA enriches human knowledge with the archaeological perspective and creates essential foundations for reflecting on the present and shaping the future. With archaeology, LEIZA understands the human being in context and shares the knowledge gained in international dialogue. LEIZA is active worldwide and has successfully and comprehensively conducted research in various regions of Africa, Asia and Europe. The unique concentration of archaeological, scientific, restoration and information technology expertise combined with important workshops, laboratories and archives allows object-oriented research to be carried out on the archaeology of the ancient world (Asia, Africa, Europe) from the beginnings of human history to modern times. As one of eight research museums of the Leibniz Association, LEIZA combines excellent science with exhibitions and, with its educational mission, is also a place of dialogue with the public.

Until its international renaming on 1 January 2023, the LEIZA was known as the Römisch-Germanisches Zentralmuseum (RGZM) and was founded in Mainz in 1852 by resolution of the German historical and antiquities societies. Since 2024, the LEIZA has been represented at a total of four locations in Germany: Mainz, Neuwied, Mayen and Schleswig. www.leiza.de

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