

# Neolithic wood usages: examples from the lowlands of Germany

Doris Jansen<sup>1,2</sup> and Oliver Nelle<sup>1,2</sup>

- 1 Graduate School “Human Development in Landscapes”, Christian-Albrechts-Universität zu Kiel, 24098 Kiel, Germany; djansen@ecology.uni-kiel.de  
 2 Institute for Ecosystem Research, Christian-Albrechts-Universität zu Kiel, 24118 Kiel, Germany; onelle@ecology.uni-kiel.de

**Summary:** Five Neolithic archaeological sites in the lowlands of Germany were studied for their wood usages by humans. At all sites generally the available wood of the surroundings was used. The charcoal spectra are representing the individual site conditions like for example adjoining wetlands. Besides the reflexion of the natural forest composition, the impact of the human activity on the landscape is visible in the spectra. Light demanding species like *Corylus* and *Maloideae* are reaching very high values indicating an opening of the landscape by Neolithic farmers.

**Key words:** natural development, human impact, *Maloideae*, archaeoanthracology, Neolithic

## INTRODUCTION / SITES

Changes in Neolithic subsistence strategy – like the rise of agriculture and the onset of constant settlements – resulted in changing land usages. At the same time the natural development of the environment occurred due to immigration processes, which resulted in the appearance, increase and decrease of woody species. Both factors together – human activity and natural development – affect the wood usage by humans.

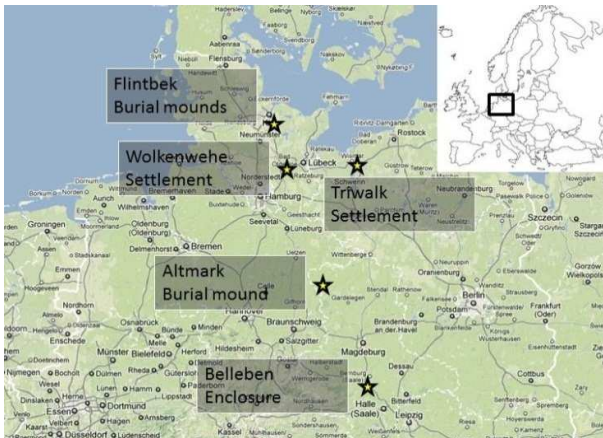


FIGURE 1. Map with the five investigated sites (source Google maps).

Charcoals from five archaeological sites (Fig. 1) were taxonomically identified; including diameter and growth ring analysis. Excavations of the grave mound field of Flintbek (1977-1996) yielded archaeological charcoal material for the time span from the Neolithic until the Iron Age. During the Neolithic more than 25 grave mounds were built. Fire was used for construction (for example for the preparation of the chamber ground), thus charcoals were found in several layers. Furthermore, a neolithic grave mound (so-called Königsgrab) near Lüdelsen (Altmark, excavation in 2009/10) was analysed. The grave was built during the funnel beaker time but human usages are detectable until the Iron Age. The third site, the neolithic station Wolkenwehe (excavation from 2006 until 2009,

Mischka *et al.*, 2007) of hitherto unknown function was located in the center of a river fen mire complex and was probably used as a temporary site. The fourth site is a settlement, which was located nearby Triwalk and which was excavated in the 1990s in the course of a motorway construction (A20). In both settlements/stations wood was mainly used as firewood, but also for construction. The last site is an enclosure with a round extension of about 90 m in diameter near Belleben in Sachsen-Anhalt, which has been excavated since 2005. The function of these enclosures is still a matter of investigation.

## RESULTS

From the five sites a total of 2588 charcoals were determined (Fig. 2). The number of species range between 8 and 15 (per site). Generally, the spectra are dominated by oak (*Quercus*) followed by hazel (*Corylus*). In the three northern sites (Flintbek, Wolkenwehe and Triwalk) the wetland species alder (*Alnus*) and ash (*Fraxinus*) are frequent. Striking are the very high values of wetland species at the settlement site of Wolkenwehe. In contrast, these species are nearly missing in the two southern, more climatically continental sites (Altmark and Belleben). Instead, pine (*Pinus*) has a higher proportion there. The subfamily *Maloideae* (which includes apple/*Malus* and hawthorn/*Crataegus*) reaches up to 15% at the sites Belleben, Flintbek and Triwalk.

## DISCUSSION

Based on the theory that for firewood supply the least necessary effort was chosen we think that the charcoal spectra represent the woody environment of the neolithic sites. The values of *Alnus*, *Fraxinus* and *Pinus* are in accordance with the natural settings of the concerned places. The site of Wolkenwehe is situated in a mire complex, thus mainly wood from the alder carr vegetation of the mire with ash and hazel was used, and the people did not go beyond the surrounding carr for greater proportions of their fuel wood supply.

Due to the size of the mire we estimate that most of the wood used comes from a maximal distance of 500 m from the site. This reconstructed resource exploitation radius also shows that the carr vegetation was sufficient for their needs.

The values of light demanding species (*Corylus* and *Maloideae*) are indicating an opening of the landscape around the sites. *Corylus* may just profit from the land use of humans; however, the explanation of the high *Maloideae* values is more difficult (Kreuz, 1992, Damblon *et al.*, 2001/2002). Because the anatomic differentiation between *Malus* and *Crataegus* (Schweingruber, 1990) is not feasible two different scenarios are possible: 1) *Crataegus* was fired because it was growing as a pasture weed or 2) *Malus* trees were used for food production near the sites and the wood was used for domestic and/or ritual fires.

### CONCLUSION

In the charcoal spectra of the neolithic period two different influences concerning species usage appear: 1) The spectra represent the natural conditions of the sites like moisture conditions, 2) The influence of humans is clearly visible in the charcoal spectra due to high values of the light demanding species (especially *Maloideae*).

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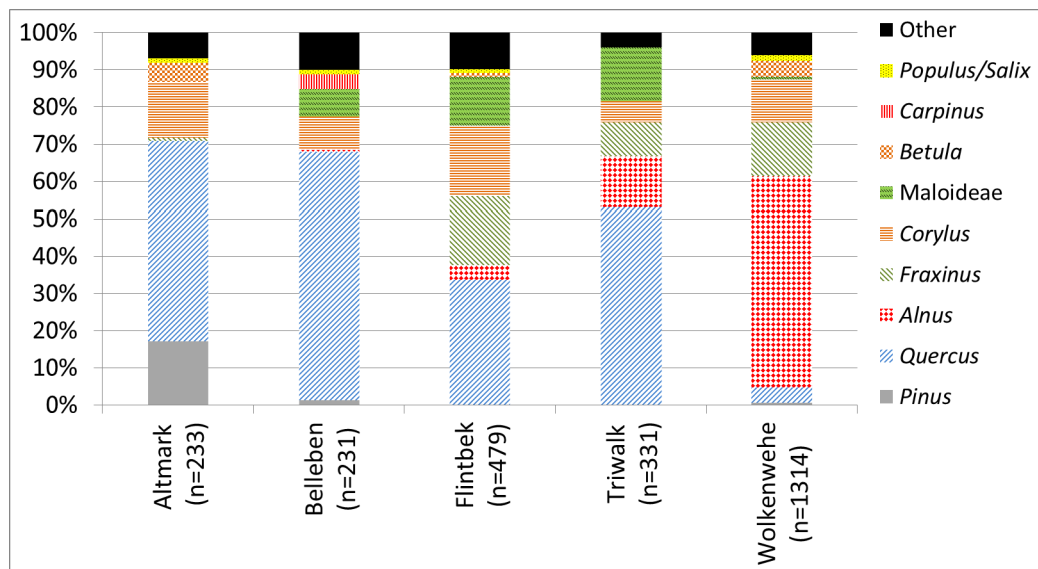


FIGURE 2. Charcoal spectra from the five archaeological sites. Other includes *Acer*, *Fagus*, *Ulmus*, *Prunus*, *Tilia*, *Cornus*, *Sorbus*, *Rhamnus*, *Hedera*, *Berberis* and *Ericaceae*