

# The charcoal and wood remains and the settlement activity of the Zedmar culture population at Szczepanki site 8 (NE Poland)

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**Summary:** *The taxonomical identification of the charcoal and wood particles, discovered on site no. 8 at Szczepanki as well as pollen studies were conducted. The studied peat-bog archaeological site was occupied from the Late Palaeolithic until the Late Neolithic but most intensively in the time of the para-Neolithic Zedmar culture. The analysis proved the strong dependence of the number of charcoal and wood fragments on the settlement intensity, confirmed by the archaeological data. On site 12 different taxa of tree and shrub remains were registered. Among them alder was the most frequently identified taxon. In the time of the Zedmar culture, an essential growth of the taxonomic diversity of charcoal and wood particles was noted. Frequencies of oak and ash particularly increased that suggests the stronger exploitation of trees with a durable wood.*

**Key words:** *peat-bog archaeological site, charcoal and wood analysis, pollen analysis, Mesolithic, Zedmar culture, NE Poland*

## INTRODUCTION

The site Szczepanki 8 in NE Poland is one of a few excavated archaeological sites of the para-Neolithic Zedmar culture in Europe. The Zedmar culture, chronologically simultaneous with the classic European Neolithic, with the economy based on foraging, was the first society producing pottery in the Great Mazurian Lake District area (Gumiński, 2003).

The site is located on the vast peat-bog covering a surface of *ca.* 25 km<sup>2</sup> and formed as an effect of terrestrialization of the former Lake Staświńskie. On one of the former islands the archaeological relicts were discovered (Fig. 1). Archaeological investigations showed that local occupation was initiated at the decline of the Palaeolithic and lasted till the end of the Neolithic period, whereas the most intensive was between *ca.* 5700 and 4000 <sup>14</sup>C BP, when the camp-site of the Zedmar culture existed.

Numerous archaeological artifacts as well as organic remains such as: wood and charcoal fragments, seeds and fruits, pollen grains, animal and human bones were found preserved in the undisturbed layers of the lake/peat-bog origin. This enabled to reconstruct changes of local vegetation in direct connection to settlement history.

## DATA AND RESULTS

Samples for palaeobotanical analysis were collected during the archaeological excavations from the uncovered cultural layers. Parallel anthracological, xylological, palynological and carpological investigations were conducted. The deposition of the studied sediments (profile 31E10S-31E0) lasted from *ca.* 10200 <sup>14</sup>C BP (the Late Palaeolithic) until *ca.* 3000 <sup>14</sup>C BP (beginning of the Bronze Age).

The remains of 12 taxa of trees and shrubs were determined: *Acer* sp. (maple), *Alnus* sp. (alder), *Betula* sp. (birch), *Corylus avellana* L. (hazel), *Fraxinus excelsior* L. (ash), *Picea/Larix* (spruce/larch), *Pinus sylvestris* L. (common pine), *Populus* sp. (poplar), *Quercus* sp. (oak), *Salix* sp. (willow), *Tilia* sp. (lime), *Ulmus* sp. (elm) (Fig. 2).

Both charred and uncharred material revealed the similar taxonomical composition and similar number of fragments of individual taxa. The most numerous were alder, oak, and hazel remains. In the fraction of burnt pieces also ash, pine and elm were registered in higher numbers. The total number of lime, birch and maple fragments ranged from 1 to 3%, while the other taxa were represented by values below 1%. Among the uncharred wood fragments a considerable number of small twigs of deciduous trees, bark as well as thin scraps of wood were found.

## DISCUSSION

The oldest part of the profile was deposited in the Palaeolithic time, when the island was seldom visited by humans. From that period no traces of burnt material were found. Among the uncharred wood remains only single alder and birch fragments were identified. Early presence of *Alnus* wood is a very interesting phenomenon in the context of palynological data suggesting its local occurrence from the Boreal period (*ca.* 8700 <sup>14</sup>C BP). In the Mesolithic period, when the settlement became more intensive though still periodical, the content of charcoal and wood particles gradually increased. Apart from alder (still predominant in the number of fragments) also hazel, pine, and elm appeared. From the beginning of the Neolithic, simultaneously with the initiation of the permanent settlement on the island by the Zedmar society, sharp increase of the burnt remains was noted. In the studied

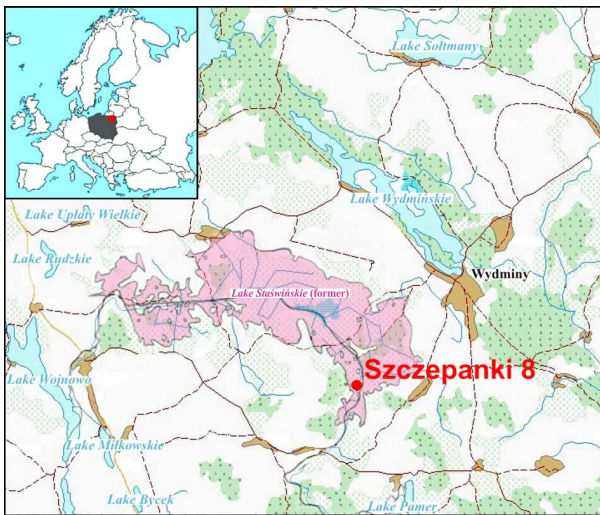


FIGURE 1. Location of Szczepanki 8 site, north-eastern Poland.

samples oak, ash, lime, willow, poplar and maple appeared more frequently and numerously.

The mentioned taxa could grow on the island, but more abundantly they occurred on the nearby lakeshore, from where wood could be easily transported to the island. In that time strong increase of oak charcoals occurred. New trees, particularly oak and ash, could have been important for humans in the context of a yearlong exploitation of the island. Features of their wood could become more esteemed with respect to its use as building material. In the Neolithic the greatest concentrations of uncharred small twigs of deciduous trees (mainly of alder and hazel) and bark pieces were found. This can suggest a whittling or barking of hazel and alder branches. Both taxa provide a light and

resilient wood which was probably used for production of spears for fishing and hunting.

The transformation of the lake into marshes (*ca.* 3500-3000 <sup>14</sup>C BP) made access to the open water (important source of food) difficult and caused the decrease of settlement intensity on the island. In the Late Neolithic deposits charcoals almost disappeared and the number of wood fragments decreased.

## CONCLUSIONS

The increased intensity of the island occupation in the time of the Zedmar culture corresponds to the enlarged accumulation of charcoal and wood fragments in the sediments. Before as well as after this period the representation of charcoal and wood remains was visibly smaller. Palaeobotanical data are in agreement with the information provided by archaeological studies concerning human impact on local environment.

## ACKNOWLEDGMENTS

This research was financially supported by the Ministry of Science and Higher Education of Poland (research funding) grant No. N N304 319636.

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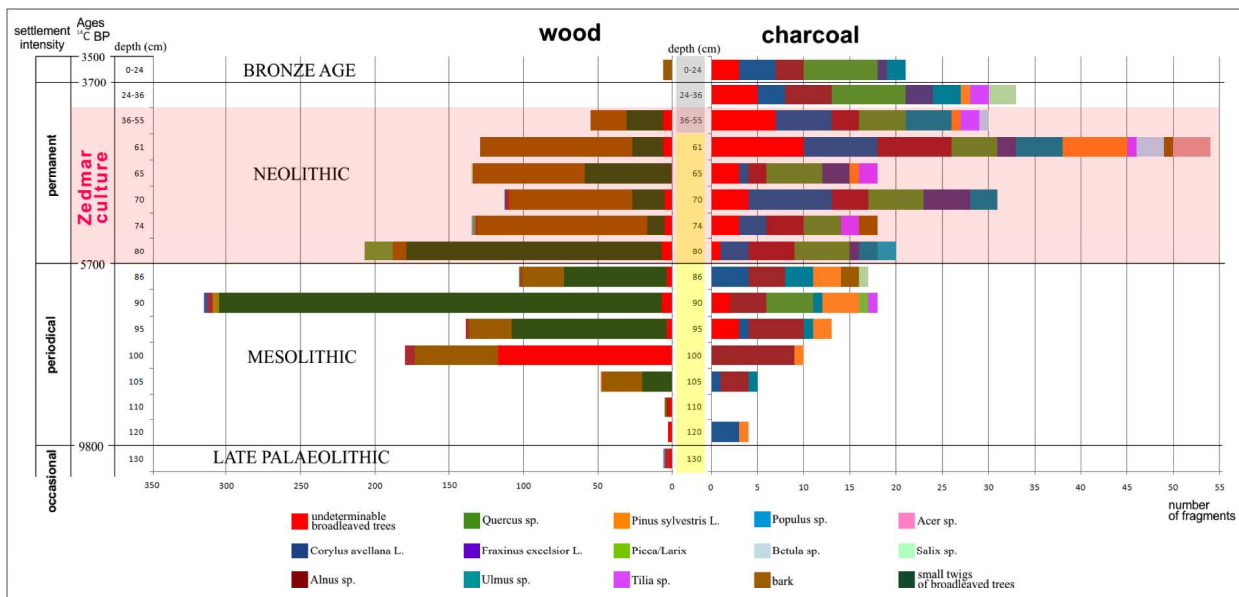


FIGURE 2. Szczepanki 8. Taxonomical composition of charcoal and wood fragments in the profile 31E10S-31E0.