An attempt to reconstruct forest communities on the basis of plant material from Roman Iron Age in Poland

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Summary: *The change in forests from the Late Pre-Roman to Late Roman Iron Ages is discussed. The reconstruction is based on the remains (charcoal, seed and fruit) of trees and bushes found at the selected archaeological sites located in different regions in Poland. The numerous remains suggest that the most common or the most often exploited forest communities were mixed forests with a domination of Scots pine (*Pinus sylvestris*) and oak (*Quercus *sp.).*

Key words: *charcoal, forest, Roman Period, Poland.*

INTRODUCTION

Charcoals occurred most numerously and most abundantly among the identified plant remains from archaeological sites in Poland. In this paper, results of macroscopic analyses of plant remains were completed from different archaeological sites and features (burial, hearths, pits and other) dated to the Late Pre-Roman, Early Roman and Late Roman periods (2nd century BC to ca. the middle of the 5th century AD) (Lityńska-Zając, 1997, 2001). Archaeobotanical sites represent the following cultures: Puchov, Przeworsk, Wielbark Cultures, Tyniec and Dębczyno Groups and West Batlic circle.

RESULTS

Remains of trees and shrubs from the Late Pre-Roman and Roman Iron Ages are on the most part charcoals, charred and uncharred seeds and fruit and imprints of leaves and seeds. Altogether, based on those data, 53 taxa were identified, including 35 species, 11 identifications to the genus and 1 to the family levels. The species or genera found have been grouped according to their occurrence in present-day forest communities based on the studies of W. Matuszkiewicz (2001) and K. Zarzycki *et al*. (2004).

Charcoals have been found from the Late Pre-Roman Iron Age at 4 sites, belonging to the Przeworsk culture. Oak (*Quercus* sp.), Scots pine (*Pinus sylvestris*) and ash (*Fraxinus excelsior*) were the most common species, present at 2 sites. The most common remains are those of the oak and then poplar or willow (*Populus* sp./*Salix* sp.) and elm (*Ulmus* sp.). Material from the Late Pre-Roman period is very poor and represents only the region of Little Poland.

11 taxa from 8 sites have been described on the basis of charcoal from the Early Roman Period. Furthermore, hazelnut (*Corylus avellana*) occurred at 3 sites, birch (*Betula* sp.) at one site and elm also at one site. The most common were the remains of oak, present at 6 sites and Scots pine found also at 6 sites. Charcoal fragments of these two species occurred in greater numbers than others whereby pine fragments were more common than oak fragments. The charcoals were found at sites belonging to various cultures, namely Przeworsk, Puchov, Wielbark and the West Balt circle.

On the basis of a small number of sites and preserved specimens found there, it is difficult to indicate what causes differences in the occurrence of particular taxa apart from the fact that the research material was scanty.

Remains of trees and shrubs from the Late Roman Period were identified at the largest number of sites, 31, and were strongly differentiated. The ones that most often survived were Scots pine (21 sites), oak (14 sites) and coniferous trees impossible to identified even to the genus level (14 sites). As far as the number of fragments is conserved, the most numerous are from oak and then Scots pine, spruce and/or larch *Picea abies/Larix* sp. and hornbeam *Carpinus betulus*.

In the sets of trees and shrubs described herein, we can notice a large diversity of taxa preserved with a clear dominance of several species, especially Scots pine and oak.

DISCUSSION AND CONCLUSIONS

An analysis of trees at archaeological sites on the basis of palynological (Dybova-Jachowicz and Sadowska, 2003) and isopollen maps (Ralska-Jasiewiczowa, 2004) indicated that charcoal remains of species with borders of their ranges on Polish soil were found at sites located inside these ranges. This was confirmed for the most part by the similarity of palynological and anthracological data. This also enabled us to indicate certain differences in the development of the vegetation from the Roman period in several geobotanical regions.

A reconstruction of forest communities indicates which communities could have developed in the vicinity of settlements. Numerous finds of pine and oak in

nearly all geobotanical regions and chronological units suggest that coniferous mixed forest occupied large areas. In the Suwalsko-Augustów region (north-east Poland) numerous pine remains confirm the occurrence of humid coniferous mixed forest similar to that found today in northern Poland. Out of the genera of trees and shrubs found, the following were capable of growing in forest habitats located on airy ground: maple (*Acer* sp.), beech (*Betula* sp.), ash, linden (*Tilia* sp.), hornbeam, hazel and spindle tree (*Euonymus europaeus*) bushes. Wood was also found coming from marshy swamps in which poplar, elm, ash and willow are capable of growing. These last taxa occur more often at Late Roman sites. This fact may indicate a greater exploitation of wood from the forest in this complex. Some of these trees are present in macroscopic fragments only in certain regions, for example spruce on the Little Poland plateau or fir (*Abies alba*) in the Carpathians. This indicates regional differentiations in forest complexes.

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