



Legacies of historic charcoal production in Brandenburg, Germany

Anna Schneider (1), Alexandra Raab (2), Alexander Bonhage (1), Florian Hirsch (1), and Thomas Raab (1)

(1) BTU Cottbus-Senftenberg, Geopedology and Landscape Development, Cottbus, Germany (anna.schneider@b-tu.de), (2) BTU Cottbus-Senftenberg, Research Center Landscape Development and Mining Landscapes (FZLB), Cottbus, Germany

The remains of historic charcoal hearths occur in many landscapes as characteristic small-scale relief features, and are valuable archives of land use history. In addition, the modifications of the soil profile on these legacies of past forest use affect current ecosystems. Despite numerous regional studies on historic hearth sites in Central Europe, a mapping and analysis of relict charcoal hearth (RCH) site distribution for larger continuous areas was hardly attempted.

Our project therefore aims at describing and assessing the spatial dimensions of historic charcoal production in Brandenburg, Germany. We present first results of a GIS-based mapping and analysis of RCH distribution in charcoal production areas around several historic ironworks (Eberswalde, Gottow, Peitz and Zehdenick) and in the Berlin Ice Marginal Valley. Hearth sites were mapped based on digital elevation models from airborne laser scanning and their geometry and spatial distribution was analyzed in relation to natural and cultural landscape structures.

Several thousand hearth sites could be mapped for each of the charcoal production areas, although surface disturbances by subsequent land use can cause a considerable underestimation of the actual spatial density of RCH, as shown by a validation of the GIS-based mapping against results from archaeological excavations and field mapping for forest areas around the ironwork in Peitz. The characteristic diameters of the RCH differ between the study areas (e.g., mainly relatively small sites were mapped in the charcoal production area in the Berlin Ice Marginal Valley, while considerably large sites were found in the area around the Peitz ironwork) and within the charcoal production areas. A comparison of mapping results with historic maps indicates that considerably high densities of hearth sites and clusters of larger hearths might be related to historic forest structures and transport networks. The results affirm that RCH are a widespread and underestimated legacy of past land use in the Northern European Lowland, even in forest areas that cannot directly be related to major historic industrial locations.