

THE HOLOCENE DEVELOPMENT OF FORESTS IN THE PILSKO MT. AREA (BESKID ŻYWIECKI RANGE, SOUTH POLAND)

Andrzej OBIDOWICZ

A b s t r a c t. Studies of the history of forest stands were conducted on two sections taken from the peat bog Pilsko (1270 m a.s.l.) and from the river terrace deposit of the Sopotnia Wielka river valley (520 m a.s.l.). The history presented here covers the last 7,000 years. The role played by *Picea*, *Abies* and *Fagus* has been reconstructed in particular.

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RECONSTRUCTION OF PALAEOCLIMATIC CHANGES REGISTERED IN THE KALETOWA LANDSLIDE (BESKID MAKOWSKI MTS., OUTER CARPATHIANS, SOUTH POLAND) ON THE BASIS OF SEDIMENTOLOGICAL AND DENDROCHRONOLOGICAL RECORDS

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Abstract. A depression within the small Kaletowa landslide, Beskid Makowski (Średni) Mts., Outer Carpathians, is filled with 1.8-m-thick organic-mineral sediments of a fen-type peatbog. Some radio-carbon datings using various material (wood detritus, tree trunk, organic silt) obtained from the bottom of the depression show that the landslide was formed at the end of the Subboreal (ca. 3 ka). The peat layer is covered by minerogenic sediments (silty clay, silt-sandy clay), 0.7 m thick, which, in turn, are overlain by a layer of sedge peat. The onset of deposition of this cover has been dated to $2,150 \pm 60$ years BP, when a strong increase in climatic humidity during the Early Subatlantic took place. At the bottom of a depression excavated during construction of a cultivation pond, trunks of fir (*Abies alba* Mill.) with roots embedded in the substratum have been found. Their life age was about 120 years. The preserved fir wood, dark grey-brown in colour, is characterized by extremely narrow tree rings, associated with local habitat (periodical inundation of the depression), and climatic changes (strong cooling and wetting) that led to both landslide and depression formation at the end of the Subboreal.

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LATE GLACIAL – HOLOCENE PEAT BOG ON KOTOŃ MT. AND ITS SIGNIFICANCE FOR RECONSTRUCTION OF PALAEOENVIRONMENT IN THE WESTERN OUTER CARPATHIANS (BESKID MAKOWSKI RANGE, SOUTH POLAND)

Włodzimierz MARGIELEWSKI, Andrzej OBIDOWICZ and Stanisław PELC

A b s t r a c t. On the south slope of the pass between Kotoń Mt. and Pękalówka Mt. (Western Carpathians, Beskid Makowski Range), there occur big landslide with longitudinal depressions, felt up of minerotrophic mire, with particularly long sequence of the Late Glacial deposits. The sediments were analysed by palynologic, macrofossils and sedimentological methods. Climatic changes of the Late Glacial and the Holocene were registered as changes in regional and local vegetation, as well as changes in the sediments. The maximal depth of the deposits amounts to about 4.7 m. On the bottom there occurs silt with gravel and a thin layer of decomposed peat, dated by ^{14}C at 12, 140 ± 70 years BP. Above, peat of the moss fen and sedge-moss fen type occurs, covered by a thick layer (thickness about 0.9 m) of minerogenic deposits (clay and silty clay). The beginning of the minerogenic cover sedimentation was dated at ca. 8, 230 ± 80 years BP. The results of pollen analysis, confirmed by radiocarbon datings, show that the landslide depression was created in the Bølling Interstadial. The peat accumulation was started in the Older Dryas. The sedimentation of minerogenic deposits covering the mire, began during the strong wet phases registered in the Early Atlantic, and being continued in the wet periods of the Subboreal and Subatlantic.

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LATE GLACIAL-HOLOCENE PALEOENVIRONMENTAL EVIDENCE RECORDED IN THE HAJDUKI PEAT BOG (BESKID ŚREDNI MTS., OUTER WESTERN CARPATHIANS)

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A b s t r a c t. In the upper part of the Ziębówka stream valley (a tributary of the Raba River) in the Beskid Średni Mountains, a landslide's peat bog of fen type occurs, which was developed in the Late Glacial. Total thickness of the deposits reaches ca. 3.3 m. The peat bog, filled with decomposed peat, woody osier peat, moss fen peat and sedge peat, is covered by minerogenic sediments (clay) ca. 1.4 m thick. The analysis of the deposits (pollen analysis, radiocarbon datings, lithological studies) have allowed to reconstruct palaeoenvironmental changes in the Late Glacial and the Holocene. Radiocarbon datings obtained from the bottom of the peat bog (13.8 ka and 13.9 ka) suggest that the depression was formed during the Oldest Dryas Stadial. The beginning of peat bog development was dated by pollen analysis at the late Bølling or the early Allerød Interstadials. In the Allerød and Younger Dryas portion of the log, repeated cyclic delivery of minerogenic sediments connected with the permafrost thawing took place. The beginning of the Holocene is very well marked in the log by a gradual delivery of minerogenic sediments, as an effect of permafrost thawing, related to climatic warming. Minerogenic cover of the peat bog, which was formed at the beginning of the early Subboreal, is preceded by an hiatus, and probably erosional removal of a part of the deposits (BO-AT), due to strong hydrometeorological events connected with the early Subboreal increase in humidity. Minerogenic sediments were deposited during the late Subboreal and the Subatlantic. The horizons of the charcoal accumulation were found in the bottom middle part and at the top of minerogenic cover. These findings suggest that the onset and prolonged sedimentation of minerogenic material in the peat bog was connected with some stages of anthropogenic deforestation in the neighbourhood, during stages of prehistorical and early Middle Age settlement.

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RECORD OF LATE HOLOCENE PALAEOENVIRONMENTAL CHANGES IN A CARPATHIAN LANDSLIDE: A CASE STUDY OF THE SIEKIERCZYNA LANDSLIDE (BESKID WYSPOWY MTS., OUTER CARPATHIANS, SOUTH POLAND)

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A b s t r a c t. Successive phases of the Siekierzyna landslide evolution (the Beskid Wyspowy Mts., Outer West Carpathians) are related to Holocene climatic changes. Three phases of the landslide rejuvenation have been radiocarbon dated at: 3.8 ka, 2.9 ka and 2.2 ka. During these phases the valley of the Lasówka stream was dammed with colluvium and formed a natural dam lake. Mobilisation of the landslide occurred in response to strong climatic changes (cooling and wetting), recorded for the Subboreal Phase (ca. 4.2–3.8 ka and 3.3–2.9 ka), as well as (especially strong) at the start of the Sub- atlantic Phase (ca. 2.4–1.8 ka BP). Results of dendrochronological analysis indicate that the youngest phases of ground mobilisation were triggered by heavy rainfalls which caused floods in the Carpathians in years: 1940–41, 1958 and 1960, as well as in 1970–1974.

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