Nature Conservation (2002) 59: 91-97

Zając T., Korzeniak J., Solarz W., Zając K., Król W. and Krzyściak-Kosińska R.

Geomorphic structure and land cover of extensively managed floodplains of the Nida River

Institute of Nature Conservation, Polish Academy of Sciences, Mickiewicza 33, 31-120 Kraków, Poland
e-mail: tzajac@iop.krakow.pl

Abstract: The aim of this paper is to define relations between the morphology of a river valley floor and its land cover, and to assess the degree in which a natural river allows management practices within the valley floor. A 30-km fragment of the lower Nida River valley was divided into 60 equal sections and 60 corresponding transects were marked across the valley floor. Basic geomorphic parameters were measured for each section, as well as the area covered by each type of land use. Relationships between land cover and geomorphic features were tested using stepwise regression. Meadows were the prevailing type of land cover; they covered over 70 percent of the floodplain; their area was positively correlated mainly with the width of the valley floor and, to a lesser degree, with the width of the meander belt and the depth of low-water channel. The area of arable land was positively correlated with the number of isohypses crossing the considered section of the valley floor, to a lesser degree with the width of floodplain, and negatively correlated with the width of the meander belt. While the riverine forest area was positively correlated with the channel gradient, correlations with the width of the avulsion belt and the difference in elevation between channel and floodplain edge were negative. The two latter parameters were also negatively correlated with the area of willow shrubs. Small woodlots were not related to any trait of the valley, except for the river depth. The length of unsurfaced country roads was positively correlated to the widths of the valley floor and meander belt. Human settlements within the valley were present only in the lower part of the watercourse, of an accumulative channel character. The length of ditches was not correlated with any morphologic trait of the river valley.

Key words: floodplain, meadows, extensive agriculture, flood, riverine forest, channel, Nida River.