

Abstract. The aim of this dissertation was to determine (i) the mechanisms of large wood supply to two mountain watercourses (Kamienica Stream in the Gorce Mountains National Park and the Czarny Dunajec River in its middle course), (ii) large wood transport and (iii) large wood deposition patterns. A 6-year-long monitoring of trees along Kamienica Stream indicated high variability in the supply of fallen trees and its restriction to extreme meteorological or hydrological events. A detailed field inventory and measurements of channel geometry allowed to determine the pattern of wood distribution in Kamienica Stream. The number and mean mass of wood deposits and the values of total wood storage were unrelated to channel width, and this reflected their relatively uniform distribution in successive channel segments. In comparison with the previous study carried out in 1997, the number of wood deposits in the stream was found to increase, while the degree of wood decay increased. The large wood inventory in the Czarny Dunajec confirmed a direct relationship between the number and mean mass of wood deposits as well as specific and total wood storage and river width, reflecting preferential deposition of large wood in wider river segments. In comparison with the previous study carried out in 2001, the number of wood deposits in the Czarny Dunajec increased, whereas their mean mass and total wood storage decreased. However, the pattern of wood distribution in the river was similar despite these changes. The length of displacement of alder logs during a 20-year flood was investigated using telemetry. The results confirmed the high potential of flood flows to transport wood in narrow, channelized river reaches and of wider, multi-thread river reaches to trap wood. The study also indicated a significant role of vegetation in intercepting large wood carried by floodwater. The deposition of pieces of living wood on channel bars in the Czarny Dunajec leads to the development of pioneer islands. Examination of the island development indicated that, contrary to the existing model, their growth progresses mostly in the upstream direction.

Key words: large wood, large wood inventory, wood supply and mobility monitoring, Czarny Dunajec, Kamienica