

**Ewa Zyśk-Gorczyńska**

**Summary of the PhD thesis: “The foraging behaviour of brown bears (*Ursus arctos*) on various tree species in the Polish Carpathian Mountains”**

Tree damage is observed throughout the distribution range of Ursidae and is done for marking and/or feeding. Marking behaviour is thought to be associated with body care or social communication and may be repeated by bears over the years; generally, it does not lead to tree death. Foraging behaviour consists in stripping the bark from the trunk and then feeding on the tree cambium and sapwood. Bark stripping by bears can result in the complete girdling of the stem, causing the tree to die. However, wounds are usually small and the damaged trees live on in the ecosystem until their natural death, providing a range of ecological niches for different organisms.

The objective of my study was to compile a detailed inventory of tree damage caused by brown bears in the Polish part of the Carpathian Mountains (the Bieszczady Mountains). I have attempted to explain the long-term, large scale factors causing tree damage and which tree species were mostly damaged by bears. I also present detailed characteristics of bear-made wounds. I go on to assess the ecological role of damaged trees and discuss the part played by brown bear damage in forest management.

Based on the results presented in this thesis, I concluded that throughout the 23 years a clearly increasing trend and distinct fluctuations in damaged tree numbers and species composition were discernible. Six tree species: fir, larch, spruce, pine, beech, and ash – were damaged by bears and conifers tree species were more frequently damaged than deciduous. Larch and spruce were preferentially affected during the whole study period. However, in 2003, bears switched to fir and it is this species that now predominates among the damaged trees. The bear numbers and the improvement in fir condition had influence on damage scale. Tree damage by bears is not a substantial problem for forest management in Poland. Moreover in forest ecosystems brown bears could be regarded as ecological engineers: through their foraging, bears initiate a cascade of biological processes that could play an important part in ecosystem dynamics.