

Forests host approximately 80 % of species of all terrestrial organisms. Human pressure on forest ecosystems drastically increased during 20th century and poses a constant threat to global biodiversity. The aim of this thesis is to summarize current knowledge of the effects of forest management on organisms and to identify underlying mechanisms. The oldest forms of forest management techniques were coppicing and coppicing with standards which enable relatively high biodiversity of species of early successional stages. Transition to classical intensive forestry caused shielding vegetation from the sun and decrease of heterogeneity. In recent decades some further intensification of management is practiced by using fast growing trees, but awareness of the need to establish sustainable forestry conditions strengthens. Managed forest contrary to natural one has substantially lower average age of trees, it shows spatial homogeneity and old and dead trees, elements that are tied to high diversity of organisms, do not occur. Species composition of woods changes often. Anthropogenic management also disrupts and weakens the natural disturbance regimes. In many economically developed countries forests have been fragmented for a long time and in vastly forested areas that have persisted to the 20th century massive deforestation and fragmentation occurs nowadays.

Human action affects most forest species across entire taxa negatively. Negatively affected groups include saproxylic mushrooms, tree bryophytes, lichens, gastropoda, saproxylic beetles and cavity-nesting birds most likely as well.

In contrast, management opens up a new space for the dispersion of generalists and species of open habitats, therefore the total diversity may not change, and it sometimes even increases. Analysis of species composition, however, indicates fewer specialists, endemites and forest species in managed forests. Total diversity is also significantly lower if exotic species of woods were introduced.

Efforts to improve conditions can lead in two directions, either through a blanket modification of management of production forests while maintaining their versatility, or through concentration of production in intensively managed plantations and setting aside more areas for conservation purposes. Both ways have their pros and cons. But it is well known that biodiversity is enhanced by heterogeneity of the environment, thus management operating at the landscape scale with different intensity ranges and variety of farming methods, in combination with natural reserves should create favorable conditions for most species.