The aim of this thesis is to explore relationship between selected indicators of human pressures and biological diversity in the Czech Republic. I assessed human impacts on ecosystems by calculating the fraction of aboveground net primary production appropriated by humans (aHANPP) in a cultural landscape of the Czech Republic. The human appropriation of aboveground net primary production reached 21.5 Tg C in aggregate or 56% of the potential natural productivity in 2006. I found the aHANPP to be a suitable indicator of human impacts on ecosystems as it detect trends and enables spatial mapping of human impacts. Furthermore, I tested hypothesis about a positive spatial relationship between human pressure indicators and biodiversity at species and ecosystem/landscape levels. I found a positive spatial coincidence (r_S=0.361) of people (measured by human population density and extent of urban areas) and species richness (measured by richness of 10 taxonomic groups of vertebrates, invertebrates and plants). Although aHANPP was not related to species richness, diversity at the landscape level (measured by Shannon landscape diversity index) was significantly negatively related to the intensity of land and ecosystem use (indicated by aHANPP). The hump-shaped relationship is reflecting an intermediate disturbance hypothesis. Presented analysis contributes to the discussion about the relationship between human activity and biodiversity in human dominated regions.