Abstract

The molluscs are very suitable model of invertebrate group for ecological and palaeoecological studies for their specific traits. In the first part of the thesis, we showed based on available fossil mollusc successions that development of the floodplain mollusc fauna took place quite different way in various river floodplains, depending on their specifics and geographical location, because especially the ones situated in the chernozem area of the Czech Republic had very different history. Detailed processing of five fossil mollusc successions in the lower Ohře River floodplain confirmed the impoverishment of recent forest malacofauna does not relate to natural processes only (chapters 3 and 10), but it arises from historical development of this area which was under permanent stress of the human settlement and agricultural utilization (chapter 1) since the coming of the Neolithic people. We made similar conclusions in case of another 11 fossil mollusc successions in the neighbouring České Středoohoří Mts. (chapter 2). In the second part of the thesis (chapter 3), we investigated the ecological patterns responsible for species richness and composition of the floodplain mollusc fauna are especially the elevation and humidity gradient, and then vegetation type and its biomass, light conditions of the site and soil reaction. Whereas the invasive plants represent a serious problem for current floodplain ecosystems, in the third part of thesis, we studied an impact of four selected species of invasive plants (Impatiens glandulifera, Fallopia japonica subsp. japonica, F. sachalinensis, F. ×bohemica) on mollusc floodplain assemblages. We confirmed all studied invasive plant species effect species richness and abundance of terrestrial gastropods and this effect is species-specific also in case of three Fallopia congeners (chapter 4). All invasive plants, except of F. ×bohemica, significantly decrease mollusc species richness about 16–48 % and also their abundances about 29–90 %. Despite the hybrid of F. ×bohemica is the most invasive Fallopia taxa, its impact on assemblages of terrestrial snails is the lowest. Food experiments confirmed (chapter 5), if gastropods have food choice between the original (Urtica dioica in experiment) and invasive plants, they always favour the original one. Invasive plants do not serve as the alternate food. In the last fourth part of thesis, we summarised all faunal data of our researches realized in the Labe River floodplain and its eight tributaries (chapters 6–13). Total of 115 species of land snails were found which represents 68% of all terrestrial gastropods known in the Czech Republic. Nevertheless, 43 species only commonly occur in the floodplains of the researched rivers and nearly a half of them (49 %) are woodland species, another 44% represent mesophile and hydrophile species and 7% constitute open-country species. According to the Red list of molluscs of the Czech Republic we found 48 endangered species. Despite of all human activities whose negative impact on the river floodplains and their biota is immense, we showed the floodplains in current fragmented and extensively human-utilized country serve for the land snails as hardly replaceable refuges.

Key words: Elbe River, land snails, invasive plants, fossil mollusc succession, river floodplain, floodplain forest