To identify and quantify the influence of physico-chemical, biotic and geographic factors on the population of dragonflies (Odonata) is an essential tool for research of their ecology. The aim of this study was to 1) assess how these factors influence species richness, diversity and spatial distribution of dragonflies in 42 newly constructed or renewed pools located in the Kokořínsko Protected Landscape Area, which is characterized by two valleys of Liběchovka and Pšovka creeks, low human impact, and a great diversity of small water bodies and 2) use laboratory experiments in order to estimate the relationship between large predatory invertebrates of these pools (Aeshna cyanea, Coenagrion puella, Chaoborus crystallinus and Notonecta glauca) and their common prey (Daphnia curvirostris) in an artificial environment with or without aquatic macrophytes.

The pools were monitored and sampled between years 2005 and 2006. In total, 23 dragonflies species were found inhabiting these lentic habitats, comprising 11 species belonging to the suborder Zygoptera and 12 species belonging to the suborder Anisoptera, including a rare species Sympetrum depressiusculum (larvae).

Most variability in the dragonfly species richness was explained by the size of the water surface area, followed by the location of the pools (inside or outside the floodplain) and after all, by the number of available pools in the neighbourhood. Much of the residual variability was explained by the species composition of zooplankton, which is a common food source for dragonfly larvae. Based upon the geographical location of pools, I have found out that the species richness of dragonflies is positively autocorrelated only over short distances (up to 1 km distance from other pools), this autocorrelation is very similar between the two suborders (Zygoptera and Anisoptera).

The species composition of dragonflies in the pools was monitored for two years. No high differences occurred over the two years, however, the studied pools differed from each other. The variability in dragonfly species composition was largely explained by the size of the water surface area, followed by the age of the pools, the history of the habitat and lastly, by the connection to a spring or a ditch. Whilst most variance in the species composition variability of the Zygoptera suborder was explained by the size of the water surface area, in the Anisoptera suborder most variation in diversity was explained by the position of the pool (in a floodplain or a ravine), followed by the number of available pools in the neighbourhood. Dependence of the diversity on the distance to neighbouring pools has not been significant, except for the long-distant pools on the peripheral areas of the region.

Laboratory experiments were conducted to assess predation pressure of either individual predator species or their combinations, under presence/absence of submersed
macrovegetation. In combined treatments, an interference between predators has been detected in one out of three experiments. The effect of aquatic macrophytes on prey consumption has been significant, however, its influence differed remarkably between assessed species: presence of vegetation had a negative effect to *Coenagrion puella* and a positive one on *Aeshna cyanea*.

Keywords: Odonata, Damselflies, Dragonflies, species diversity, species richness, pools, environmental factors, spatial factors, predation experiments