**Species composition, environmental preferences and distribution of aquatic bugs (Heteroptera, Nepomorpha) in Bulgaria**
**(Summary)**

The thesis contains summarized data (collected during a period of 15 years from 446 localities) about the distribution and ecology of aquatic bugs (Nepomorpha, Heteroptera) in Bulgaria. The material was collected by hydrobiological net using a multi-habitat sampling method, but also by light trapping and vacuum extraction; in some cases by individual searching for species in their specific habitats. In result of the present study it is established that there are 39 species, 17 genus and 9 families occurring in Bulgaria. First certain localities in the country of two species (*Sigara assimilis* и *Micronecta pusilla*) are registered. The presence of the vulnerable species *Ochterus marginatus* for Bulgaria is confirmed, after more than 50 years. The understanding of 10 rare species' distribution is improved. Nine habitat types are identified as important for the preservation of these species. Due to the climate changes observed on the Balkans and the tendency for its warming, the areal of *Lethocerus patruelis* is broadening northward. The flight activity of four species of Corixidae in the vicinity of Lake Srebarna in early summer is studied – the activity is highest during the first hour after sunset, furthermore the observed changes in the dispersal activity of the most common species *Sigara striata*, could be explained (to a great extent) by changes in air temperature, atmospheric pressure and wind speed. A model of the distribution of suitable habitats for *Aphelocheirus aestivalis* is built with the application of the maximum entropy principle. According to the model there is high probability of finding suitable habitats for this species in the lower courses of rivers with low levels of pollution; river sections with

high probability of occurrence of suitable habitat for *Aphelocheirus aestivalis* are identified. The first cytogenetic data for benthic water bugs (Nepomorpha: Aphelocheiridae) is reported as 2n=23 (22A+X0), this chromosome number had not been reported in infraorder Nepomorpha. For the first time achiasmate meiosis is found in two species of *Cymatia* (Corixidae) and the significance of this cytogenetic characteristic for the systematics of Corixidae is discussed. For the first time the canonical "insect" $(TTAGG)_n$ is detected in the telomeres of (two) species of family Nepidae – second family of aquatic Heteroptera with this motif.