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Changes of faunal composition of insects-hortobionts and longterm dynamics of species diversity in the Chernobyl exclusion zone biotopes studied. It is shown that on despite of the continuing fluctuations in species diversity, which may be associated with the process of long-term dynamics of the number of species, there was a clear trend to increasing abundance of species of insects. In evolutionary terms the settlement of harmful populations in natural habitats should be considered as the primary groupings as opposed to the secondary – on agricultural crops. For these groupings here are different vectors of selection: in the first case – naturally, in the second – artificial under the influence of anthropogenic factors. Different types of selection lead to the formation of different structures of phenotypic groupings and, accordingly, of their physiological characteristics. With the competitive process, biological regulation, nutrition by plants with natural resistance, the primary groupings acquire the genetic diversity, generalized type of nutrition and high viability. In secondary groupings, the vector of selection is aimed at high reproductive potential, due to the specialized type of nutrition by cultural plants that have much higher energy value than natural.