Abstracts of the studies included in the thesis

Effect of land use and climate on diversity of moth guilds with different habitat specialization

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Abstract. An assemblage of moth species at a suburb of Prague (50°5'11"N,14°18'06"E) was monitored by a highly efficient mercury light trap for 23 years (1967-1976, 1980-1992). Species caught were divided into seven guilds according to habitat specialisation, and analysed for yearly catches and effect of annual mean temperature and precipitation by Shannon's index of diversity, separately for all and abundant (≥ 5 individuals per year) species. Overall, 424 species was recorded: 25 early successional species of arable land (43% of all caught individuals), 116 forest species feeding on trees and shrubs, 33 forest species feeding on herbs and lichens, 92 forest-steppe species, 116 grassland

species, 28 wetland species, and 14 non-specialized generalists. Species diversity of habitat specialist was mainly driven by changes of land use, independently on climate variables: diversity of arable land species followed a domed relationship with a peak in early succession stages after field abandonment, diversity of wetland and forest-steppe species decreased in time due to the destruction of their habitats, and diversity of grassland, and both groups of forest species, did not change in time as their habitats were not substantially changing. In contrast, the diversity of generalists increased with mean annual temperature. Abundant species were represented by 127 species and exhibited patterns similar to all species, plus some more subtle changes. Grassland species tended to increase with mean annual precipitation at low mean annual temperature. Non-specialized species in the first years of observation had the same tendency but simultaneously tended to decrease with increasing precipitation at high average temperature. It is concluded that for habitat specialist, the indication of climate changes by indices of diversity can be overlaid by changes in habitat use or buffered by availability of suitable habitats, and that selection of abundant species, by elimination of random catches, can precise the revealed patterns of diversity.