

Ecological trends in endemic Mediterranean butterflies

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Abstract

In our knowledge of Palaearctic insects there is a research gap concerning ecological and/or evolutionary features associated with Mediterranean conditions in general and with Mediterranean endemism in particular. This subject is here addressed from the case study of one of the better known insect groups: butterflies (Lepidoptera Rhopalocera). Life-history traits of 23 Mediterranean endemic butterfly species (excluding mountain and island endemics), each one belonging to a different genus, are here compared with those of non-endemic species of the same genera with a widespread distribution outside as well as inside the Mediterranean Region. Endemic butterflies tend to have relatively fewer generations per year, earlier adult emergence, shorter flying period and a more restricted reported diet as caterpillars, with less diversity of host plant genera and a larger use of exclusive genera. No differences in wintering stage were found. The shorter flying period may be an effect of the higher altitude of the habitat of some endemics compared with that of their widespread counterparts. Evidence is presented supporting the hypothesis that the earlier start of the flying period is due to adaptive evolution in univoltine-bivoltine Mediterranean endemics in order to avoid the deleterious effects of summer drought in caterpillars. The origin of all these differences is discussed from the scope of metapopulation genetics.

Key words: Rhopalocera, phenology, voltinism, adaptation, summer drought.

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