HELSINGIN YLIOPISTO — HELSINGFORS UNIVERSITET

Tiedekunta — Fakultet	Laitos — Institution	
Faculty of Science	Department of Ecology and Systematics	
Tekijä — Författare		
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Työn nimi — Arbetets titel		
One day in the life of a butterfly; a study of the biology of the Glanville fritillary *Melitaea cinxia*		
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Ecology		
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The Glanville fritillary *Melitaea cinxia* is a rare or endangered butterfly across Europe. The population and metapopulation dynamics of the *M. cinxia* have recently been intensively researched in Finland, where the species occurs only in the Åland islands. Background information on the behaviour of adult individuals was lacking. I made an observational study during the summer of 1994, aiming to unravel the main features of the biology of the adult butterfly.

Mate locating in insects is usually performed by the males, especially in butterflies. Mate locating in butterflies belonging to the same subfamily as *M. cinxia* has been studied in recent years. I followed individual *M. cinxia* males in the field under natural conditions and observed the behaviour of males in rearing cages. My results show that *M. cinxia* has a similar mode of mate-location as its relatives; males concentrate their search in areas where larval host plants are dense. Males unable to hold perching sites in these areas use another tactic, called patrolling. This is adaptive as there is always a chance that larvae survive in low numbers in areas where larval host plants are sparse.

The behaviour of females searching for oviposition sites was also observed in some detail. I quantified the searching behaviour of five females in natural conditions. *Melitaea cinxia* lays its eggs in clusters of up to 300 eggs. Thus females should lay their egg clusters in areas where larval survival is highest. Females spend long periods of time searching for such places and concentrate their search in areas where larval host plant densities are high. Often larval groups are found in nonoptimal areas, however. In these cases, it appears that the female's motivation to oviposit excedes her need to find an optimal oviposition site.

Seven females were placed in individual rearing cages to record the potential fecundity. Females are able to lay at least seven egg clusters during their lifetimes. This makes it possible for a single female to colonize an empty habitat patch.

I conducted a mark-release-recapture study in the whole study area. Butterflies were very mobile within habitat patches but not between patches. I observed some butterflies leaving a habitat patch only to return within the same day. This suggests that *M. cinxia* is averse to flying over hostile terrain. Rich meadow, containing an abundance of nectar sources, was very attractive to males but not females.

Avainsanat — Nyckelord

butterfly ecology, *Melitaea cinxia*, mate-location, prealighting behaviour, fecundity, mark-release-recapture study

Säilytyspaikka — Förvaringställe

Eläintieteen ja perinnöllisyystieteen laitosten kirjasto

Muita tietoja — Övriga uppgifter