

RESUMO

Adult demography, spatial distribution and movements of *Phengaris alcon* (Lepidoptera: Lycaenidae) populations in Portugal

Herein we present the results of the first mark-release-recapture (MRR) study on five populations of *Phengaris alcon* near Lamas D'Ôlo, a small village located in the Natural Park of Alvão (PNA) in Portugal. For the study of the adult demographic parameters, a MRR study was conducted during the flight period on the five meadow sites, named: LI: Libania; PM: Plana dos Mijaceiros; PR: Ponte Romana; FM: Frente do Moinho and MO: Moinho near Lamas D'Ôlo Village. The data were analysed using MARK 8.0 software according to Cormack-Jolly-Seber type constrained models to obtain the estimates of survival and capture probability for each population site. Daily population size and recruitment, corrected recruitment and the average life span were also calculated separately for each site. Emigration and immigration rates (inter sites movements) for each patch were determined as well as the persistence rate (intra site movement).

A total of 2002 individuals (LI: 781, PM: 838; PR: 98; FM: 205; MO: 80) were marked of which 309 of them were recaptured resulting in an overall recapture rate of 15% (LI: 20.36%, PM: 9.07%; PR: 31.63%; FM: 15.61%; MO: 13.75%). Most individuals were recapture only once (209), while 16 individuals were recapture twice and two individuals were recaptured at least three times.

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The population size on PM was the highest with an estimate of about 4977 individuals when compared with LI (1980 individuals), FM (522 individuals), PR (265 individuals) and MO (125 individuals). The highest average adult lifespan estimated was of 7.85 days for PR, followed by LI (5.36 days), MO (4.53 days), FM (3.92 days) and PM (3.41 days). Distances between recaptures ranged between 50 and 900 m but most movements were rather short and remained within a median distance of 100 m. The five populations show relatively stability, with low average emigration rate (inter sites movements) of about 2.27% and a highly average persistence rate (intra site movement) of 98.00%. Our results suggest that the populations of the studied species are relatively well conserved. This is of particular importance for *P. alcon* since this species is known from very few localities in Portugal.



PALAVRAS-CHAVE: *Phengaris alcon*, mark-release-recapture, adult demography, spatial distribution