

How Sociality, Weather and Other Factors Affect the Leaving, Transition and Settling Phases of Dispersal in the Buzzard *Buteo buteo*.

Walls, S.S. 2004.

PhD thesis, University of Reading.

Dispersal is an ecological phenomenon that determines the distribution of species within their environment. If population models are to be spatially dynamic, it is important to understand all three phases of dispersal: (i) leaving, (ii) transition and (iii) settling. This thesis presents and analyses detailed data for the individual phases of dispersal in the buzzard *Buteo buteo*. Such data, suitable for spatial modelling of all three phases for dispersal of any vertebrate species, are exceptional.

Juvenile buzzards in Dorset, UK, were radio-tagged and then tracked to record when they left their natal area and their subsequent movements. More intensive intermittent tracking over two weeks was used to estimate where buzzards position home ranges with respect to breeders and non-breeders. Finally, a continuous all-day track was carried out to investigate the consequences of early natal dispersal by comparing time budgets.

Leaving appeared very dependent on earthworm availability and occurred during good weather, with no evidence that preceding bad weather initiated dispersal. Juveniles that did not disperse had a strong positive association with the nest, suggesting that the parental territories may provide a safe haven for their offspring. Investigation of the transition phase indicated that it took less than ten days and was affected by the weather. Buzzards leaving during higher temperatures and when the winds had changed to a more southerly direction dispersed further. Dispersed buzzards settled within the areas of higher nest density within the study area, but in the gaps between territories. Home range overlap showed small exclusive cores that could be shared by siblings in their first year. The conservation values of these elements are discussed and the three phases of dispersal are combined as the basis for a spatially explicit population model.