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3521 : DIET AND PREY TYPE SELECTION BY ROLLERS *Coracias garrulus* DURING THE BREEDING SEASON IN SOUTHWEST OF THE IBERIAN PENINSULA

Le régime alimentaire et la sélection des proies du Rollier d'Europe en période de nidification ont été étudiés par l'analyse des pelotes de réjection et par l'évaluation de la nourriture disponible dans le Sud de l'Espagne. Les Insectes Orthoptères représentent la catégorie de proies les plus fréquemment consommée, suivie par les coléoptères et les *Araneae*, alors que les micromammifères ne sont capturés qu'épisodiquement. En revanche, ces derniers constituent la biomasse la plus élevée du régime alimentaire. Chez les Insectes Arthropodes, ce sont les orthoptères qui représentent la biomasse la plus forte, suivis par les coléoptères et les *Araneae*. Le régime alimentaire du Rollier semble déterminé par la taille des proies capturées et probablement par le degré de "capturabilité".

Mots clés: Régime alimentaire, Sélection des proies, Rollier d'Europe, *Coracias garrulus*, Espagne.

INTRODUCTION

The Roller *Coracias garrulus* is widely distributed across the Palearctic region (CRAMP & SIMMONS, 1988). The majority of their breeding populations are declining, probably due to the loss of suitable habitats as a consequence of the recent agricultural intensification (TUCKER & HEATH, 1994). Although their breeding populations are highly fragmented (AVILÉS 1999), rollers have a stronghold in Spain, where numbers are thought to be stable and have been recently estimated around 6,000 pairs (HAGEMEIJER & BLAIR 1997). In the Iberian Peninsula the Roller mainly breeds in open unwooded areas exploiting the holes of the scarce trees and those offered by human constructions (FOLCH, 1996).

The available information on the diet of the Roller is very scarce and mainly restricted to northern latitudes. So, a predominance of insects in the diet of the species has been reported in Hungary (CRAMP & SIMMONS, 1988), Germany (HAENSEL, 1966) and Poland (SOSNOWSKI & CHMIELEWSKI, 1996). In the Mediterranean area only the study of CASSOLA & LOVARY (1979) reflects the diet composition from rests collected at one nest when chicks had fledged, and recently, the chick diet has been assessed in Spain from samples collected by the ligature methods (AVILÉS & PAREJO, 1997). However, they did not attempt to relate food abundance with usage, although a relationship between the decline of available preys for the species and their populational declines has been typically assumed (TUCKER & HEATH, 1994). Food type selection may be an important parameter for predicting the effects of farm management practices on breeding populations of rollers and could also be used to develop integrated land management programmes to enhance Roller food supplies in areas already used by the species.

In this study we estimate the diet composition of adult rollers during their reproduction in open areas of the Southwest of Spain. We assess diet preferences of the species by quantifying use and abundance of prey types in the study area.

STUDY AREA AND METHODS

The study was undertaken in the Serena region (39º03' N, 5º14'W) in the Southwest of Spain. It is in the mesomediterranean climate area (RIVAS-MARTÍNEZ, 1981) and during May and June the mean temperature is 17.7º C and the mean rainfall is 11.6 mm. The area is characterised by the predominance of dry pastures and cereal crops (AVILÉS *et al.*, 2000).

Twenty-one pellets were carefully collected in three visits under 5 nest-boxes occupied by breeding rollers since 26 of April to 24 of May of 1998. The same number of pellets was approximately collected in each nest. Pellets were disintegrated and separated into fragments identified with a zoom binocular microscope (x 6-10) by comparison with the collection at the University of Extremadura and considering CHALINE *et al.* (1974), MOREBY (1987) and LEPLEY (1994) studies. We counted one prey item based on the minimum number of individuals estimated from anatomical fragments.

The diet was expressed as the percentage that each prey category in relation to the total number of consumed preys (% F). The percentage of biomass (% B) of each taxa was estimated considering the weight of the arthropods obtained in 1995 in the study area (AVILÉS & COSTILLO, 1998). We excluded the Dermaptera because they did not appear in that study and represented a low biomass portion in our data. The weight of the consumed small mammals by Roller was taken from BLANCO (1998).

Rollers mainly feed within 150 m. of distance from the nest during the breeding season in our study area (AVILÉS & COSTILLO, 1998), and, generally, they hunt their preys on the ground (CRAMP & SIMMONS, 1988). We estimated arthropods availability in these foraging locations on 10 of May by direct observation of the arthropods present in 25 randomly selected squares of 25 x 25 cm situated on the ground within