

First records on the diet of the Robin *Erithacus rubecula* (Linnaeus, 1758) on a Galician island during postbreeding migration

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Abstract

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The composition of the diet of the Robin on the Island of Ons (Atlantic Islands National Park, Northwestern Spain) was studied between October and November 1993. The diet was fundamentally composed of animal prey (invertebrates), mainly Formicidae and Coleoptera. The ecological limitations of the insular ecosystem studied may affect the survival of stable winter communities of passerines.

Key words: Robin, *Erithacus rubecula*, diet, Atlantic Islands National Park, Galicia, Spain.

Resumen

TAPIA, L., GAYOSO, A. & DOMÍNGUEZ, J. (2005). Primeros datos sobre la dieta del Petirrojo *Erithacus rubecula* (Linnaeus, 1758) en una isla en Galicia durante la migración postnupcial. *Nova Acta Científica Compostelana (Biología)*, 14: 79-82

La composición de la dieta del Petirrojo en la Isla de Ons (Parque Nacional de las Islas Atlánticas, noroeste de España) fue estudiada entre octubre y noviembre de 1993. La dieta estuvo compuesta fundamentalmente de invertebrados, principalmente Formicidae y Coleoptera. Las limitaciones ecológicas de los ecosistemas insulares estudiados pueden afectar a la supervivencia de comunidades invernantes estables de passeriformes.

Palabras clave: Petirrojo, *Erithacus rubecula*, dieta, Parque Nacional Islas Atlánticas, Galicia, España.

INTRODUCTION

Insularity is usually manifested in different aspects of the bioecology of the species present in island environments (CARLQUIST, 1974). Although islands of the Galician coast are inhabited by many different bird species (DOMÍNGUEZ *et al.*, 2003), there is no information available about the trophic ecology of land birds. Even within

Galicia, passeriforme feeding has traditionally received little attention (see GUITIÁN, 1985, 1987; SANTAMARINA, 1987, 1990; ARCAS, 1998).

The Robin (*Erithacus rubecula*) is a bird of western Palearctic distribution, with migrating populations in northern Europe and sedentary populations in southern Europe. The main wintering grounds are located in the Mediterranean area (CRAMP, 1988). In Galicia it is a broadly

breeding species (MARTÍ & DEL MORAL, 2003), whose numbers are bolstered in autumn by non-Iberian individuals, although populations remain smaller than those in the east and south of Spain (BUENO, 1998; TELLERÍA *et al.*, 1999). In Europe it mainly feeds on invertebrates, mainly Coleoptera and Formicidae captured from perches or directly on the floor (CRAMP, 1988).

Here we document the autumnal diet of the robin in a Galician insular environment during the postbreeding migration period.

MATERIAL AND METHODS

The present study was carried out on the Island of Ons (Atlantic Islands National Park), located opposite the Ría of Pontevedra (42° 29' N; 8° 57' O). The surface area of the island is 442 ha, and it is separated from the mainland by a distance of 3.5 km. The relief is smooth, and the maximum altitude 128 m. The most common type of vegetation is shrub, mainly *Ulex* sp., although there are some cultivated areas characterised by arvense communities. In the south, centre and northeast of the island there are three small areas of *Pinus pinaster* and *Eucalyptus globulus* forest. The Robin is a scarce resident nesting bird on the island, with an autumnal density in the shrub areas of 4.3 ± 1.45 birds/10 ha (mean \pm S.E.) (TAPIA, 2001). During a field study carried out in October and November 1993 the birds were captured by means of mist nets, and maintained in transpirable boxes for ½-1 hour in order to carry out measurements and to obtain their pellets. The birds were measured and weighed (to the nearest gram) using a Pesola spring balance. The pellets were analysed in the laboratory with a binocular dissecting microscope (10x-20x). Although there may be some bias introduced by the analysis of pellets to determine dietary composition (HÓDAR, 1994), it appears to provide an acceptable evaluation of the feeding of insectivorous birds (ROSENBERG & COOPER, 1990). The prey were separated and identified to order or family level, depending on the degree of fragmentation of the pellets. The percentage occurrence and numerical

frequency of each *taxa* identified were determined (ROSENBERG & COOPER, 1990). The plant fraction was also determined, recording only presence (number of pellets which it appeared) in this case. A non parametric test was used for statistical analysis of the results (SIEGEL & CASTELLAN, 1988). All mean values are indicated with standard error.

RESULTS AND DISCUSSION

A total of 36 birds were captured and the pellets of 21 different individuals were analyzed. The pellets contained a total of 271 prey items. The average weight of the birds was 15 ± 1.71 gr. ($n = 35$). Twelve birds were recaptured, with an average interval of 8 ± 3.7 days (range 1-30), with no significant differences observed in the initial weight and the weight at the time of recapture (Wilcoxon Test, $T = 27$; $n = 12$, $Z = 0.18$, n.s.). The diet of the robins captured was fundamentally composed of ants (Formicidae) and beetles (Coleoptera), with these groups representing almost 90% of the total prey (Table 1). Other groups represented included: Myriapoda, Gastropoda, Diptera, Himenoptera (excluding Formicidae) and Aphidae. The plant portion was fundamentally composed of small pieces of fruits and non-identified seeds, which together accounted for 52% of this fraction. In the pellets analysed mineral matter was also present in the form of small stones. These results are similar to those obtained in other European areas (CRAMP, 1988) and also in agricultural areas in the south of Spain, where the animal component of the diet prevailed (HERRERA, 1977). However, the diet contrasts with that observed in robins inhabiting forests in the Cantabrian mountains, where the consumption of fruits was more frequent in autumn (GUTIÁN, 1985), possibly because they were more readily available in this environment.

The fact that the recaptured birds had not gained weight could indicate a lower availability of trophic resources than in nearby continental areas. If this is true, it may be reasonable to expect difficulties during the insular establishment of

TABLE I. Composition of the diet of the Robin during autumn migration on the Island of Ons

	% P	% F
Gastropoda n.i.	14.2	1.4
Miriapoda	52.3	5.5
Curculionidae	38.5	4.6
Carabidae	9.5	0.92
Coleoptera n.i.	64.7	10.1
Coleoptera total	66.6	15.6
Diptera	14.2	1.8
Formicidae	100	73.2
Hymenoptera	12.5	1.8
Aphidae	9.5	0.92
Plant n.i.	52.3	-
Mineral	9.5	-
Sample size 21		
Number of preys 271		

Abbreviations: %P, percentage of occurrence; %F, numerical frequency; n.i. no identified.

stable winter communities of passerines. In this sense, the information available for the Island of Ons reveals appreciable decreases in bird numbers between spring and autumn (TAPIA, 2001; DOMÍNGUEZ *et al.*, 2003). In this way, the important ecological limitations that insular ecosystems habitually present may limit the food available to them and may even affect the survival of the birds (NEWTON, 1998).

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