

AUTUMN FOOD OF WOODCOCK (*SCOLOPAX RUSTICOLA* L., 1758) IN THE DANUBE DELTA

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Introduction

The ecology of the Woodcock raises practical problems since habitat degradation and overhunting in wintering areas present difficulties for the European population. The previous literature on this species is vast but contains little information for bird protection due to the fact that most data was recorded in relation to hunting.

The Working Group on Woodcock of the IWRB urges therefore the collection of thorough information. We have therefore initiated regular research on Woodcock in the frame of this program.

The stomach samples were collected continuously from the classic Woodcock habitat of Hungary and from the Danube Delta in Romania. The previous samples were evaluated elsewhere (*Kiss–Sterbetz, 1972, Kiss, 1976, 1977, Kiss–Sterbetz, 1979, Kiss–Rékási, 1980, Kiss–Rékási–Richnovsky, 1986, Kiss–Rékási–Sterbetz, 1986*). This paper, as a continuation of the series, gives an evaluation of the autumn records on Woodcocks in 1986, comprising 176 observed and 27 collected specimens.

Study area

The spring migration of Woodcock in Dobrudza is mainly located to the West of the inundation area of the Danube, whilst in autumn the majority of the birds migrate along the flood-plain. The observations and collections were made within a 2–4 km radius of Tulcea in areas frequented by Woodcocks in autumn. At that time they occupied consistently bushes, thickets and shelters of the bush-wood heaps. In one collecting area was covered by a planted mixed forest, acacia, elm, lime, orange-mulberry trees, hawthorn, elder, spindle-trees other trees. The distribution of Woodcocks in the various habitats is presented in Table 1.

Materials and Methods

Our study comprised only a relatively small number of specimens due to difficulties of observation and sampling. Thus, no general statements could be expected from the results. In the course of the study data were recorded

1. táblázat

Table 1.

A szalonkák megoszlása az egyes élőhelytípusokon
Distribution of Woodcocks in various habitats

Növénytársulás	Szalonkák száma	%
Plant community	No.	%
Ültetett dombvidéki vegyes erdő Planted hilly-country mixed forest	103	58,52
Ültetett nyárfás, gyalogakácos aljnövényzet Planted poplar grove with false acacia undercover	52	29,54
Ültetett nyárfás, szederbozót aljnövényzet Planted poplar grove with bramble undercover	10	5,68
Ősfüzes, aljnövényzet nélkül Old willow-bed without undercover	5	2,84
Ősfüzes, szederbokros aljnövényzettel Old willow-bed with bramble undercover	4	2,27
Egyéb (nádas, tó fölött, este húzáson) Other (reeds, over a pond, evening flight)	2	1,13
Összesen Total	176	100,0

on the rhythm of the autumn migration, quantitative data on feeding, as well as on the quantitative and qualitative composition of the stomach contents and energetics and on the sex distribution of Woodcocks.

Discovery of Woodcocks in the study area was facilitated by a skilled Hungarian pointer similar to the practice of previous years. The most effective method is flushing birds hiding in day-time. Approximately 85% of the Woodcocks observed so far in the Danube Delta were found by hunting dogs. Despite its drawbacks this method seems to be the most efficient for censusing the migrating bird population.

The bird specimens were inspected for sex by autopsy since no other sexing method could be used with this species.

The stomach contents were stored in a dry state. The food items are detailed in Table 3 in decreasing order according to frequency and number (in identical cases in alphabetic order). The items were grouped as plant and animal foods, irrespective of taxonomic classification.

The energy content of foods was calculated on the basis of the snipe (*Gallinago sp.*) published by Devort et al. (1986). The food composition for

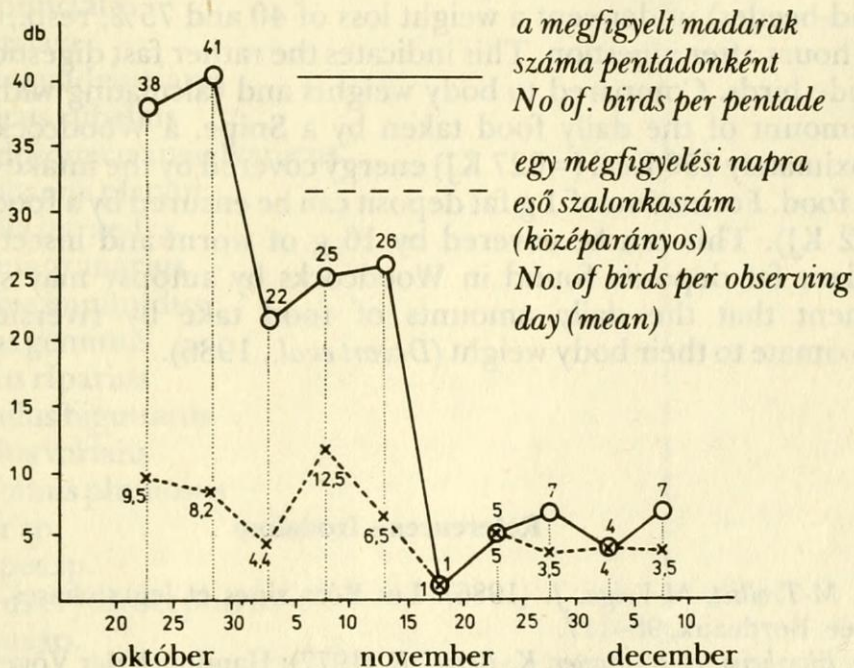
the Woodcock is similar in character to that of the Snipe. To compensate for the body weight of *Scolopax*, calculations were performed with a threefold amount of the daily food for the Snipe.

Results

In 1986 between October 2th and December 8th a total of 176 Woodcocks were recorded on an average of 2,5-hour field visit occasions. The chronological order of the records given in the diagram reveals the extreme fluctuation of the migration. In the Danube Delta the rate of migration was intense from the second half of October to mid-November. Subsequently, the Woodcocks occurred in rather lower numbers until the onset of winter.

Of 27 specimens males and females constituted 66,7 and 33,3% resp. The mean proportion of males varies between 52,2 and 54,5% according to *Glutz et al.* (1977) and the spring total, collected during display flights was almost totally males. The latter gains support from Hungarian experiences, as well. It is noteworthy that autumn pairs of birds were flushed and shot on two occasions. On the first occasion both were males, on the second both females!

The body weight data are given in Table 2. The record weight was a male of 431 g, but otherwise the females were heavier. Among females four specimens (44,4%) weighed over 360 g, whilst only 27,7% of males (5 specimens) surpassed this value.



1. 176 észak-dobruzdjai (Románia) szalonka időbeli megoszlása az 1986-os őszi vonulás alkalmával
Chronological distribution of 176 Woodcocks in North-Dobruzda

2. táblázat

Table 2.

27 erdei szalonka súlyadatai
Body weight data taken from 27 Woodcocks

Ivar	Példányszám	Testsúly		Közéérték
Sex	No.	Body weight (g)		Mean (g)
		Maximum	Minimum	
Hím Males	18	431	314	351,44
Tojó Females	9	404	319	356,33
Összesen Total	27			

The dry weights of stomach contents varied from 1,9 to 3,2 g, the mean was 2,42 g, consistent with our previous data. Plant food constituted a negligible part both quantitatively and energetically. Among animal food items no item occurred with a frequency of over 50%. The various earthworm species accepted as dominant Woodcock food could only be identified in two cases due to the fast gastric digestion of the worms. According to Devort (1986), a similar stomach composition of the Snipe (earth worms, esellids, ground-beetles) underwent a weight loss of 40 and 75%, resp., 10 minutes and 4 hours after ingestion. This indicates the rather fast digestion ability of riverside birds. Compared to body weights and calculating with the three-fold amount of the daily food taken by a Snipe, a Woodcock consumes approximately 150 Kcal (=627 KJ) energy covered by the intake of ca. 100 g insect food. Formation of 1 g fat deposit can be ensured by a food of 18 Kcal (=75,2 KJ). This can be covered by 16 g of worm and insect food. The abundant fat deposits found in Woodcocks by autopsy may support the statement that the daily amounts of food take by riverside birds is approximate to their body weight (Devort *et al.*, 1986).

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3. táblázat

Table 3.

27 erdei szalonka (*Scolopax rusticola*) példány gyomortartalma
Composition of stomach contents from 27 Woodcocks

A táplálék neve	Előfordulás	Darabszám
Food item	Occurrence	No.
A) Plant foods Növényi táplálék		
Seeds Carex sp. mag	1	3
Seeds Echinochloa crus-galli mag	1	2
Seeds Carex silvatica mag	1	1
Seeds Polygonum aviculare mag	1	1
Seeds Sagittaria sagittifolia mag	1	1
Fragments of unidentified roots Ismeretlen gyökértöredék	1	x
B) Animal food items: Állati tápláléknekemek:		
Glomeris hexasticha	10	28
Amara aena	6	8
Julus sp.	5	10
Harpalus affinis	5	7
Corixa punctata	4	6
Sigara striata	2	5
Trechus quadristriatus	2	3
Lumbricus rubellus	1	4
Craspedosoma transsylvanicus	1	3
Dendrobaena platyura	1	3
Eiseniella tetraedra	1	3
Aphodius granarius	1	2
Aphodius immundus	1	2
Bidessus geminus	1	2
Elaphrus riparius	1	2
Notophilus biguttatus	1	2
Aphodius varians	1	1
Chironomus plumosus	1	1
Cybister sp.	1	1
Geotrupes sp.	1	1
Lithobius erythrocephalus	1	1
Lithobius sp.	1	1
Onthophagus coenobita	1	1
Tachys nanus	1	1
Zabrus tenebrioides	1	1

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Duna-deltai vizsgálat az erdei szalonka (*Scolopax rusticola* L., 1758) őszi táplálkozásáról

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A szerzők a Duna-delta árterületén 1986 őszén átvonuló erdei szalonkák vonulási üteméről, ivararányáról, testtömegváltozásairól, mennyiségi és minőségi táplálék-összetételéről gyűjtöttek megfigyeléseket, illetve végeztek vizsgálatokat.

Az átvonuló példányok számlálását erre a célra beidomított vadászkutya segítségével, a vizsgált terület átjárásakor, a madarak felrebbentésével végezték 1986. október 20. és december 18. között, alkalmi bejárásokkal.

Az ivararány-vizsgálat a lőtt szalonkák boncolása útján történt.

A bromtológiai vizsgálatok a lőtt példányokon folytak.

Megállapították, hogy a vizsgálati időszakban az erdei szalonkák átvonulását a szélsőséges hullámzás jellemezte. Október második felében erőteljes vonulást tapasztaltak, amely a tél kezdetéig fokozatosan csökkent.

A gyűjtött 27 erdei szalonka ivararányát 2:1-nek találták a hímek javára.

A testtömegméréseknél a tojók nehezebbnek bizonyultak a hímeknél, de a testtömegértékek jelentős hullámzást mutattak. A bromtológiai vizsgálatok szerint az erdei szalonkák növényi eredetű tápláléka elhanyagolható.

Az állati táplálék jelentős részét alkották a rovarok, és meglepően kis arányban találtak gyűrűsférgeket, amit az erdei szalonkák igen gyors emésztésével magyaráznak.

Saját vizsgálataik és irodalmi adatok (Devort et al. 1986) alapján az erdei szalonka napi energiefelvételét 150 kcalban (kb. 627 kJ) határozzák meg. Ennek alapján az erdei szalonka napi táplálékfelvételét – ami férgéből és rovarokból kerül ki – a madár testtömegével azonos mennyiségűnek becsülik.