

Short communications - Rövid közlemények

Winter homing of Greenfinch (*Carduelis chloris*)

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During winter mortality levels of birds are high and may reduce many bird populations (MacArthur 1971). However the winter range of birds has received little attention as compared to a variety of other aspects such as breeding. The majority of the work on winter site fidelity refers to New World species (Loftin et al. 1966, Nickell 1968, Ralph & Mewaldt 1975, 1976, Woods 1975, Kennard 1976, Benvenuti & Ioalé 1980, Yunick 1983, Faaborg & Arendt 1984, Kricher & Davis 1986). We do have, however, some data about the wintering site fidelity of European species from the Mediterranean (Benvenuti & Ioalé 1980, Ioalé & Benvenuti 1983). Ralph & Mewaldt (1975) found that the sensitive period for the imprinting process for site tenacity lasts from the end of the migratory season to the beginning of wintering.

We chose the Greenfinch (*Carduelis chloris*) for our study of winter homing. This species breeds commonly in Hungary; part of the breeding population

winters in the Balkan Peninsula, and the resident population is increased by individuals which have migrated from Czechoslovakia and Poland. From December to March, between 1982 and 1986, we caught and banded Greenfinches weekly at an artificial feeder in a suburban habitat, a small town (Tamási) in the south of Hungary (18°25' E, 46°40' N).

3029 individuals were caught, 1663 (54.9%) males and 1366 (45.1%) females. (The sex ratio was notably similar to data obtained by Westphal (1981) in West-Berlin, where 53.2% males and 46.8% females were trapped over a period of 18 years.) There was no significant difference in recapture rate between the males and females (21.2% and 20.4%, respectively). Number of recaptures per birds caught repeatedly within the season were 1.24 (S.D.=0.51, n=265) of males and 1.26 (S.D.=0.54, n=268) of females. The rate of return was low. After the first year that the birds were banded, return percentages were 1.03% and 1.10% for males and

Tab. 1. The number of banded males (M) and females (F) of Greenfinch, the number and percent of returns by month of capture, and the number of returns by month of recapture

Month	Banded			Number of returns by month of capture			Percent of returns by month of capture			Number of returns by month of recapture		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
December	93	60	153	0	0	0	0	0	0	1	2	3
January	587	477	1064	8	6	14	1.36	1.26	1.32	15	11	26
February	785	671	1456	12	11	23	1.53	1.64	1.58	7	6	13
March	198	158	356	3	2	5	1.52	1.27	1.40	0	0	0
Total	1663	1366	3029	23	19	42	1.38	1.39	1.39	23	19	42

Tab. 2. Average differences in days between banding data and first recapturing data the subsequent winter

		One year later	Two years later
Males	n	15	8
	\bar{x}	-22.8	-15.6
	S.D.	26.9	25.7
Females	n	11	8
	\bar{x}	-21.0	-10.0
	S.D.	23.4	22.6
Average	n	26	16
	\bar{x}	-22.0	-12.9
	S.D.	25.0	23.6

females respectively, and after the second year of banding, percentages of returning birds were 1.66% and 1.73%. In the third year no individuals returned.

The number of returns analyzed by month of recapture was highest in that month in which the highest number of birds were banded, however the percent of returns did not differ between the months (Tab. 1). In the returns the number of birds banded at the beginning of winter was not higher than that of the birds banded at the end of winter. However, when we further examined the distribution of returns by month of recapture, we found that in the subsequent year the birds were recaptured earlier than would have been expected by the month of banding. In the first year after banding the Greenfinches returned three weeks earlier than when we had caught them in the previous year, and in the second year after banding they returned two weeks earlier than in the year of banding (Tab. 2).

Faaborg & Arendt (1984) argued that winter site fidelity is characteristic of species which winter regularly and they link the coexistence of the bird community with a stable abundance of food supply. Yunick (1983) suggested that *Fringillidae* species migrate only irregularly in North America and their presence in various habitats fluctuates widely; consequently they do not show a tendency to return to the same winter sites year after year.

Our findings suggest, that the Green-

finch, as a representative of European finches, is not a philopatric species in winter. Nevertheless, on the basis of the earlier recapture data it may be suggested that Greenfinches adapt through behaviour, which promotes the return to feeding places where they have occurred in previous years.

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