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FIRST ARRIVAL DATES OF SPRING MIGRATION AND TIMING OF BREEDING IN THE STARLING (*STURNUS VULGARIS*)

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The first arrival dates during the spring migration and the timing of breeding of starlings were recorded for the years 1980–2003 in the village of Mokrice (46°00'N, 15°55'E) in NW Croatia. The correlation between first arrival date and timing of breeding was not statistically significant.

Key words: starling, first arrival date, timing of breeding, NW Croatia

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Istraživanje je obavljeno na području sela Mokrice (46°00'N, 15°55'E; sjeverozapadna Hrvatska). Podaci se odnose na razdoblje od 1980. do 2003. godine. Bilježen je prvi dan povratka čvoraka sa zimovanja i prvo sneseno jaje u sezoni gniježđenja. Nije bilo statistički značajne povezanosti između datuma povratka i datuma početka nesenja jaja u čvoraka.

Ključne riječi: čvorak, datum povratka, datum početka gniježđenja, sjeverozapadna Hrvatska

INTRODUCTION

The phenology of spring activity among birds and evidence of earlier spring arrivals and earlier nesting in Europe over the last few decades has been documented (e.g. MASON, 1995: CRICK *et al.*, 1997; SOKOLOV *et al.*, 1998; BARRETT, 2002; DOLENEC, 2003). Positive correlations between first arrival dates and timing of breeding have been reported by several authors (e.g. GRISSER, 1995; SOKOLOV & PAYEVSKY, 1998).

STUDY AREA AND METHODS

This study took place in the village of Mokrice (46°00'N, 15°55'), in NW Croatia, where the starling is a common nesting bird (DOLENEC, 1997; 1999), over the years 1980–2003. Nesting boxes were placed in trees 2.5–5 m above the ground in an area of mixed farming, a productive habitat for starlings (e.g. CRAMP & PERRINS, 1994). The nest boxes were of a standard type, the diameter of the entrance hole being 4.5 – 5.0 cm. The study included only first clutches. Starlings are known for intraspecific parasitism (e.g. YOM – TOV *et al.*, 1974; DOLENEC, 2001) and parasitically laid eggs were excluded from this analysis (mostly recognized by colour differences and by two eggs being laid on the same day). From 25 March onwards, the nesting boxes were visited every day to record the laying date (the date of the first egg in a clutch). Most starlings return from their wintering grounds in Italy and North Africa in the second half of February (DOLENEC, 1994, 1998). Most first arrival dates during spring migration were collected by the author, with some recorded by amateur birdwatchers.

RESULTS AND DISCUSSION

The mean date of first arrival of starlings was February 18 and the mean date of the first egg was April 11 (Tab. 1). The earliest arrival was in 1992 (February 7), the latest in 1987 (March 1). The earliest date of the first egg was in 1994 (April 1), the latest in 1982 (April 16).

Tab. 1. First arrival dates (A) and timing of breeding (B) in the starling (1980–2003)

	Mean	Range	N
A	February 18	February 7 – March 1	24
B	April 11	April 1 – April 16	24

The relationship between arrival date and date of first egg for the 24 years was examined by correlation but was not significant ($r = 0.312$, $p > 0.05$, $N = 24$). The return of the starling from its winter habitat and the beginning of the breeding season are therefore not related. A positive correlation between timing of breeding and first arrival dates has been found in some bird species e.g. in the red-backed shrike *Lanius colurio* from France (GRISSER, 1995).

For birds, earlier nesting could be beneficial if juvenile survival is enhanced by a prolonged period before the onset of winter. Conversely, birds may be adversely affected if they become unsynchronized with the phenology of their food supplies (CRICK *et al.*, 1997).

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SAŽETAK

Odnos između datuma prvog pojavljivanja vrste čvorak nakon zimovanja i početka nesenja

Z. Dolenec

Za neke je vrste ptica dokazana značajna pozitivna povezanost između datuma povratka sa zimovanja i početka gniježđenja (primjerice GRISSER, 1995; SOKOLOV & PAYEVSKY, 1998). Međutim, u vrste čvorak, na području sjeverozapadne Hrvatske, nema statistički značajne povezanosti između spomenutih varijabli. Prema CRICKU *et al*. (1997) ranije gniježđenje može biti korisno za preživljavanje mladih ptica zbog produljenja predzimskog razdoblja, a može biti i suprotno, nepovoljno, ako se pojavi neusklađenost sa zalihama hrane.