

Migration and wintering distribution of the Marsh Harrier (*Circus aeruginosus*) in southern Italy

Tah a zimování motáka pochopa (*Circus aeruginosus*) v jižní Itálii

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ABSTRACT. Observations on the migration and wintering of the Marsh Harrier were made in southern continental Italy and in Sicily, respectively. The aim of this study was to investigate the migration and wintering distribution of birds belonging to different sex and age groups. During the autumn migration at the Calabrian Apennines, a total of 453 individuals was observed 63 % of which were adults. Among adults, males outnumbered females. In Sicily mostly wintering juveniles were observed. During spring migration at the Straits of Messina, 1301 birds were counted, more than 80 % of which were adults.

INTRODUCTION

The Marsh Harrier is a summer resident in northern, eastern, and central Europe. Many individuals winter in the Mediterranean basin, while others cross the Sahara to winter in tropical North and East Africa (CRAMP & SIMMONS 1980). Although juvenile dispersal begins in early August, in northern Europe the peak of autumn migration occurs during the last ten days of that month, while at the Straits of Gibraltar the peak occurs in the second half of September (KJELLÉN 1992, FINLAYSON 1992). In spring the main period of movement is in late March - early April (FINLAYSON 1992, YOSEF 1996, AGOSTINI & MALARA 1997).

Marsh Harriers have relatively long wings and, during migration, they frequently use powered flight and undertake crossings of large bodies of water (KERLINGER 1989). Individuals migrating over the central Mediterranean, use two routes: one from Sicily to Tunisia, and a second across a larger stretch of sea via Malta (BEAMAN & GALEA 1974, AGOSTINI & DUCHI 1994, COLEIRO et al. 1996, AGOSTINI & LOGOZZO 1998). Individuals breeding in Finland cross the central Mediterranean, while birds ringed at Cap Bon (Tunisia) in spring were recovered in the Czech Republic, Poland, Belorussia and Ukraine (CRAMP & SIMMONS 1980, GENSBOL 1992).

In southern Italy, the largest concentration of individuals has been observed over the Calabrian Apennines and at the Straits of Messina, during autumn and spring respectively (GIORDANO 1991, AGOSTINI & LOGOZZO 1995, AGOSTINI & MALARA 1997, AGOSTINI & LOGOZZO 1997).

This study provides information on the migration and wintering distribution of Marsh Harriers in this Mediterranean area.

STUDY AREA AND METHODS

Observations on the Calabrian Apennines were made from 26 August to 10 October 1996, at a watchsite where the distance between the Tyrrhenian and Ionian coasts is narrowest (Approx. 30 km, Fig. 1). We, alternately used two observation posts on the slopes of Mount Covello and Mount Contessa, at an altitude of approx. 700 m. The valley of the river Pesipe separates Mount Covello from Mount Contessa in the west. In this area the Apennines are interrupted by level ground between the two reliefs and the Sila plateau to the north and the Tyrrhenian and the Ionian coasts to the west and to the east.

At the Straits of Messina (Fig. 1), observations were made from 21 March to 5 May 1997, at the narrowest point using an observation post on the Calabrian side of the strait. On the Calabrian Apennines and at the Straits of Messina few birds are observed outside of these periods (AGOSTINI et al. 1994, 1995, AGOSTINI & LOGOZZO 1995, AGOSTINI & MALARA 1997, AGOSTINI & LOGOZZO 1997).

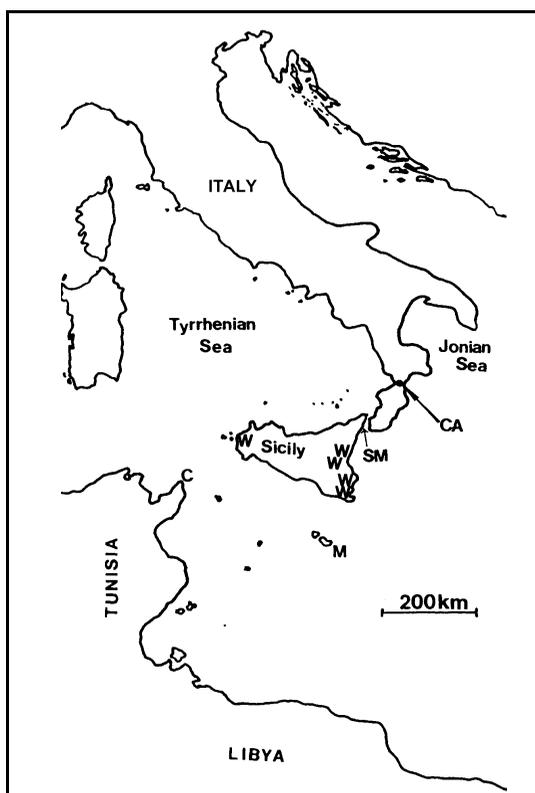


Fig. 1 - The study area (M = Malta, C = Cap Bon, SM = Straits of Messina, CA = autumn site in the Calabrian Apennines, W = wintering sites).

Obr. 1 - Sledovaná oblast (M - Malta, C - Cap Bon, SM - Messinský průliv, CA - místo podzemního sledování v Kalábrii, W - zimoviště).

We divided each observation season into nine five-day periods. We estimated the total number of individuals belonging to the two age and sex classes according to their proportions among identified individuals for each five-day period. Particularly, the

proportion of females and juveniles was estimated dividing unidentified individuals of the group female-juvenile between the two age groups according to their proportions among the identified individuals (KJELLÉN 1992).

310 and 347 hr of observations were tallied using 10x50 binoculars, on the Calabrian Apennines and at the Straits of Messina, respectively.

Observations on the wintering individuals were made in five sites of eastern and western Sicily (Fig. 1), in December 1996.

RESULTS AND DISCUSSION

On the Calabrian Apennines a total of 453 Marsh Harriers was observed; of these, 228 (50 %) migrated in flocks comprised, on average, of 2.8 birds. The migration showed two peaks, from 6 to 10 and from 16 to 20 September (Fig. 2). We observed the plumage of migrating birds in 219 (48 %) cases; of which 38 % were males, 25 % females and 37 % juveniles. Among adults, males outnumbered females (84 vs 55, $\chi^2 = 5.64$, $P < 0.05$), mostly from 6 to 10 September (Fig. 2). Our data contrast with results of a study made on the autumn migration of raptors at the Falsterbo peninsula (Sweden), where 78 % of Marsh Harriers observed were juveniles and among adults females outnumbered males (KJELLÉN 1992). To explain the enormous difference between the individuals belonging to the two age groups, KJELLÉN supposed that adults were less inclined to follow leading-lines during migration. However, considering also the greater number of females recorded in that study, another factor could have caused different results in the two places. As mentioned above, many Marsh Harriers winter in the Mediterranean basin; the wintering population in Italy has been estimated at 400-800 individuals (CHIAVETTA 1986). Observations carried out in

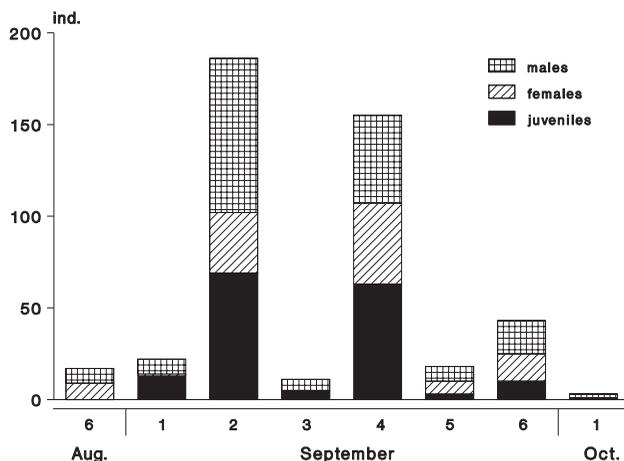


Fig. 2 - Male, female and juvenile, Marsh Harriers observed in nine 5-day periods during autumn, according to their proportion among identified individuals.

Obr. 2 - Samci, samice a mládí jedinci, motáka pochopa pozorování během podzimního tahu (v 5ti denních periodách) na základě podílu těchto kategorií mezi bezpečně určenými jedinci.

Sicily in December 1996, showed that 64 % (N = 44) of wintering Marsh Harriers were juveniles; among adults not one male was observed. These results agree with other observations made in Italy (CHIAVETTA 1981). Apparently, the greater tendency of males to migrate over a long-distance could be the cause of their high proportion in the Calabrian Apennines. Female harriers capture larger prey and, probably, are able to tolerate colder temperatures and fast longer than males (NEWTON 1979, KERLINGER 1989).

At the Straits of Messina the number of Marsh Harriers counted was 1301, with the peak during the first 5 days of April (Fig. 3). Nearly 70 % of Marsh Harriers were seen in groups comprised on average of 3.4 individuals. We sexed and aged 664 individuals (51 %); of these 42 % were males, 40 % females and 18 % juveniles. The proportion of juveniles increased late in the season (Fig. 3).

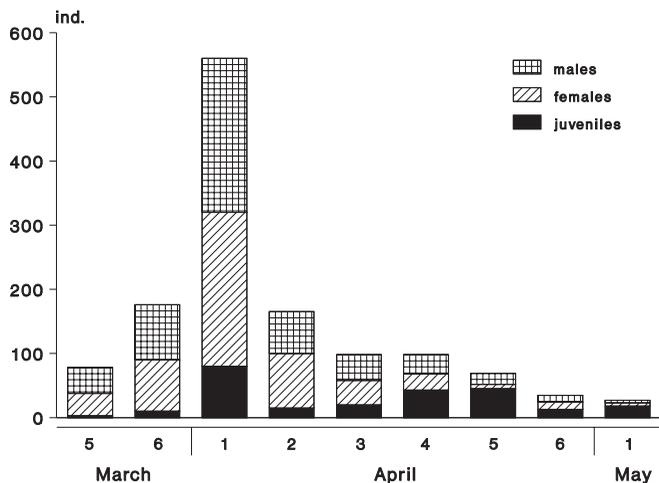


Fig. 3 - Male, female and juvenile, Marsh Harriers observed in nine 5-day periods during spring, according to their proportion among identified individuals.

Obr. 3 - Samci, samice a mladí jedinci, motáka pochopa pozorováni během jarního tahu (v 5ti denních periodách) na základě podílu těchto kategorií mezi bezpečně určenými jedinci.

SOUHRN

Na podzim 1996 (srpen až říjen) a na jaře 1997 (březen až květen) byl sledován průtah motáka pochopa (*Circus aeruginosus*) v jižní Itálii. Podzimní tah byl sledován v Kalábrijských Apeninách (obr. 1), jarní tah v Messinském průlivu (obr. 1). V Kalábrijských Apeninách bylo pozorováno celkem 453 pochopů, z nichž 228 (50 %) táhlo v hejnech o průměrné velikosti 2,8 jedince. Časový průběh migrace viz obr. 2. Podle opeření bylo možno determinovat věk či pohlaví u 219 pochopů (48 %). Z nich 38 % byli samci, 25 % samice a 37 % mladí ptáci (juv.). Mezi dospělými jedinci prevažovali výrazně samci.

Při jarním průtahu v Messinském průlivu bylo pozorováno 1301 pochopů, časový průběh viz obr. 3. Téměř 70 % pozorovaných jedinců bylo ve skupinách o průměrné velikosti 3,4 ex. Věk či pohlaví se podařilo určit u 664 pochopů (51 %). Z nich 42 % bylo samců, 40 % samic a 18 % mladých (juv.) jedinců.

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