BREVI NOTE

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NOTE ON THE SPRING MIGRATION OF BEE-EATERS, *MEROPS APIASTER*, OVER THE ISLAND OF USTICA

RIASSUNTO. – Nota sulla migrazione primaverile dei Gruccioni, *Merops apiaster*, sull'isola di Ustica.

The Bee-eater, *Merops apiaster,* is a summer resident in Europe wintering in Africa south of the Sahara (FRY, 1984). During migration these birds tend to fly high in loose flocks calling frequently and often becoming difficult to see (FRY, 1984). In the Mediterranean basin, the greatest concentrations are observed in autumn at the Straits of Gibraltar, where tens of thousands of birds are counted every year (LOPEZ GORDO, 1975; TELLERIA, 1979; FINLAYSON, 1992). Up to now, no systematic observations were made in the central Mediterranean area both in spring and in autumn. However, during spring, large flocks are recorded over the island of Malta (SULTANA & GAUCI, 1982) and at the Straits of Messina (Agostini, pers. obs.). In this season, the peak movement occurs between the second half of April and the first half of May (FRY, 1984).

Bee-eaters are able to fly more than 500 km in a day, an individual ringed in northern Tunisia in May being recovered after a day in the Potenza Province, Southern Italy (FRY, 1984). This bird reached the Italian peninsula flying 520 km NE, perhaps via the island of Ustica. This study provides information on the spring migration of Bee-eaters over this island, concentrating particularly on their flight behaviour along the coast.

Ustica is a small island (8.5 km) about 60 km N of Western Sicily, 270 km NE of the Cap Bon promontory (Tunisia) and 230 km E off the Italian Peninsula.

Observations were made between 30 April and 16 May 2001 using 10X40 binoculars. The observation post was placed on the promontory located on the North Eastern side of the island, at its highest point (about 150 m). From this post it was possible to detect the birds undertaking the crossing of the Tyrrhenian Sea. Each day was divided into three periods (solar time): morning (09.00-12.00), midday (12.00-15.00) and afternoon (15.00-18.00).

A total of 80 flocks counting a total 1393 birds were seen undertaking water crossing, mean flock size including 17.4 ± 1.2 (se) birds; only a flock containing

28 birds was recorded returning inland. The migratory flow showed an evident peak on 30 April, when a total of 28 (35%) flocks and 552 (39.6%) birds were counted. The migratory flow varied significantly throughout the day ($c = 244.94$, $df = 2$, $P < 0.001$) with the highest proportion of birds observed during the morning (Fig.1). Although Bee-eaters normally tend to migrate during the day, the hundreds of birds seen leaving the island during the afternoon prove their ability to migrate across water surfaces by night; in fact, because they fly at a maximum speed of 19 m/s (average speed 12.5 m/s; BRUDERER & BOLDT, 2001), birds leaving Ustica should take about four hours to reach the Italian peninsula. In our study 12 flocks including a total of 185 birds were recorded during the last two hours of observation, about two-three hours before sunset. The Bee-eaters reached the promontory in flocks low above the ground, almost at the post level. Flocks sometimes separated and individuals perched and/or hunted singularly. Before undertaking the crossing, Bee-eaters generally gathered in flight in front of the extreme tip of the promontory, very close to our observation post, the first individuals soon followed by the others. At that moment the flock was in compact formation with birds soaring or, with opposite wind, remaining stationary, heading NE by beating sometimes their wings. When the birds, finally, undertook the crossing their calling became insistent. Only on four occasions a total of 59 (4.2%) birds left the flock and returned inland, 56 (95%) of them during the afternoon.

The Bee-eater is gregarious throughout the year; these birds breed in colonies and also in the winter quarters it is possible to observe flocks counting hundreds of birds (FRY 1984). The strong tendency to remain together, in compact flocks, in front of the water barrier, suggests that flock formation should not be casual during migration. This species is mostly monogamous and there is indication that pairing is life-long (FRY, 1984). Moreover, studies made in the breeding areas showed that the average colonies count 8 nests and that one nest in

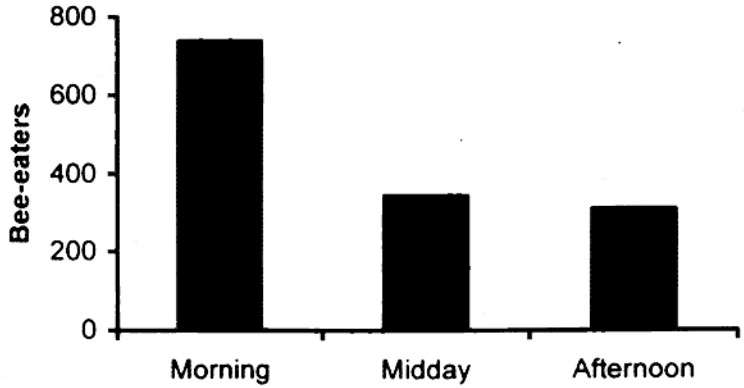

Fig. 1 – Variation of the migratory flow of Bee-eaters throughout the day.

about five has a helper (PRIKLONSKIY, 1970; CANO, 1960; SCHUMANN, 1971; DYER, 1983). These results agree with the average flock size (17.4) observed in our study suggesting that birds breeding in the same colony might migrate together.

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