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Additional observations of age-dependent migration behaviour in western honey buzzards *Pernis apivorus*

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The western honey buzzard *Pernis apivorus* is a summer resident in Europe that winters in west-central Equatorial Africa (Cramp and Simmons 1980). Individuals of different ages migrate in different periods. Adults move about two to three weeks earlier than juveniles (Kjellén 1992, Agostini and Logozzo 1995). In a recent paper, Hake et al. (2003) reported data on the autumn migration of nine honey buzzards (six adults and three juveniles) from Sweden that were tracked by satellite. The results showed that whereas adults crossed the Mediterranean Sea at the Straits of Gibraltar, juveniles migrated on a broader front and undertook long powered flights "somewhere" over the open sea. Visual observations in the central Mediterranean region clearly showed the existence of different spatial migration patterns between adult and juvenile honey buzzards during post-reproductive movements (Agostini and Logozzo 1997, Agostini et al. 1999, 2000, 2002). Unfortunately, Hake et al. did not quote these sources causing a gap in their work. Here I review these papers in an effort to fill this gap.

In the central Mediterranean, adult honey buzzards migrate mainly from late August through early September (Agostini and Logozzo 1995). Here they tend to follow the Italian peninsula and, upon reaching the Straits of Messina between the "toe" of southern Italy and Sicily turn west. Many of them will fly across Sicily, and then southwest across the Sicilian Channel heading towards the Cap Bon peninsula (Agostini and Logozzo 1997, Agostini et al. 2000, Fig. 1). The experienced adult birds probably use the reverse of the spring route (Agostini et al. 1994, Agostini and Logozzo 1998). Thus Agostini and colleagues concluded that adult honey buzzards apply true navigational abilities, thus avoiding a longer flight across the central Mediterranean, probably to minimize risks and energetic costs (Agostini and Logozzo 1997, Agostini et al. 2000). Only a few juveniles migrate together with adults on this migration route (Agostini et al. 1999, 2000). Most of them arrive at least two weeks later at the coasts of the Mediterranean, typically in all juvenile flocks or alone. Unlike adults, juveniles passing through southern continental Italy after the second week of September take off in southern Sicily and then concentrate over Malta to reach probably Libya, moving along a NE-SW innate axis (Fig. 1, Agostini and Logozzo 1995, Agostini et al. 1999). During their first migration, inexperienced juvenile honey buzzards are not familiar with the shortest route to cross the central Mediterranean and presumably are moving along innate migratory directions. It is interesting to note that observations at the Circeo promontory (central Italy, Fig. 1) and over Malta suggest that at least part of the juveniles crossing the Tyrrhenian Sea change their innate direction of migration in response to the open water (Agostini et al. 2002, see also Agostini et al. 2004). In the case of juvenile honey buzzards Agostini and colleagues (2000, 2002) concluded that these spatial migration patterns may explain why they show a broader front in migration, and why concentrations of juveniles but only a few adults are reported at many islands of the Mediterranean, such as Cabrera, Corsica, Capri, Pianosa, Malta and Cyprus (Frost 1994, Rebassa 1995, Agostini et al.

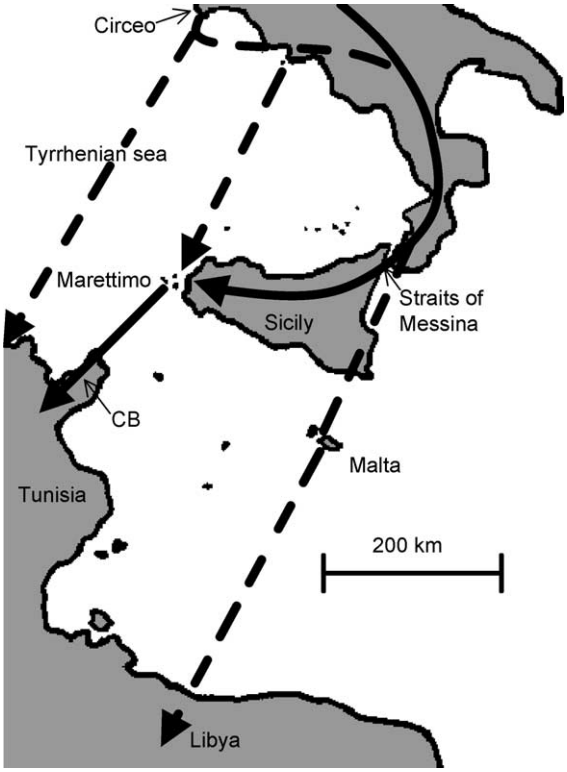

Fig. 1. Approximate migratory flyways used by adult (solid arrow) and juvenile (dashed arrow) honey buzzards during autumn migration across the central Mediterranean (CB = Cap Bon peninsula).

1999, Jonzén and Pettersson 1999, Schmid 2000, Paesani and Politi 2002).

Hake et al.'s (2003) work confirms these earlier observations.

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