Strategies of migration and wintering of Italian lesser kestrel *Falco naumanni* populations

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Avian migration is naturally a plastic trait, and tracking migratory birds is problematic because of distances and areas involved. Electronic data loggers (e.g. light-level geolocators, GPS/GSM tags, etc) provide a means to directly follow several individuals and understand migration routes and geographic patterns of population displacements in overwintering areas. Thanks to the collaboration between different projects (PRIN, LIFE+ LIFE11/NAT/IT068), we tracked lesser kestrels equipped with GPS/UHF and GLS devices and we analyzed the migration data of more than 20 individuals breeding in different populations of Sicily (Gela Plain) and Southern Italy (Altamura, Gravina). The weights of complete backpacks (transmitter plus harness) was within 3% of individual body mass. We used both visual observation of QGIS maps and standardized method based on net displacement (ND) to classify onset and termination dates of migration, duration of migration and migration distances of all individuals. At the end of the breeding season, lesser kestrels moved from their southern breeding grounds to northern areas to spend the summer, thus confirming also for Italy the post-breeding behavior of most Western European populations. Migration departures data are concentrated in late September when the Italian Lesser Kestrels crossed the Mediterranean Sea and arrived straight to the Tunisian and Libyan coasts. All individuals overwintered in a large Sahel area, extending in longitude from Senegal to Chad. Individuals from different populations showed overlapping home ranges, and most of them showed small-scale winter movements, suggesting a progressive exploitation of winter foraging grounds. Spring migration started during the first weeks of March. The direction of return flight was similar to that of autumn migration, but occurred at a slower speed with more stopovers and with less time spent in nocturnal flight.