

Satellite tracking of Red Kites *Milvus milvus* in Germany – an ongoing study

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Introduction

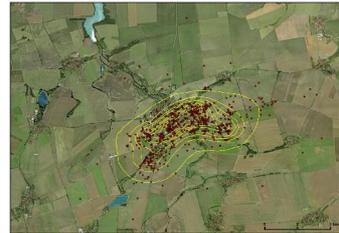
Two-thirds of the Red Kite population are concentrated in Central Europe. Many aspects of the life style of this bird can only be studied adequately using satellite telemetry. Since 2001, satellite transmitters (PTTs) small and light enough to be fitted to Red Kites have been available to assist research.

Method

Since 2002 21 Red Kites have been fitted with PTTs near Weimar in Central Germany. In the time frame 2002 to 2005, nine Red Kites (two juveniles and seven adults) were fitted with solar-powered PTTs in Thuringia (Germany) which, up to the end of 2008, enabled 2,686 fixes to be made by Argos using the Doppler Effect. Most fixes were not very precise, but are adequate for studies of migratory behaviour. In the time frame 2007-2009, 11 further adult Red Kites and a one year old male were fitted with GPS PTTs, which enable fixes accurate to within a few metres. These GPS PTTs enabled the extent of home ranges, habitat use etc. to be precisely studied.



Adult Red Kite male with a 22 g solar-powered GPS satellite transmitter. The transmitter and antenna are clearly visible. Photo: B.-U. Meyburg.



Kernel analysis of the home range of an adult male (PTT 74998) in the breeding area. The results are based on over 1,100 GPS fixes, whereby the fixes in the immediate vicinity of the nest were not included.

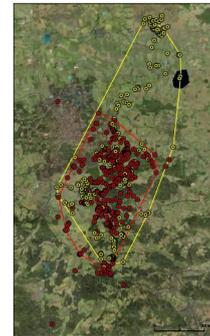
Results

In total seven autumn migrations to Spain and four return journeys to the breeding area were tracked of the first nine birds. Apart from one juvenile, which departed as early as August and required 47 days to reach Spain, migration began in the first half of October. Arrival in spring took place between 5 and 12 March. During migration to winter quarters the birds covered distances of between 1,450 and 2,320 km, for which the adult birds required between 12 to 28 days. Spring migration, taking between 8 to 22 days, was somewhat quicker. Three members of a family (the male and two juveniles) migrated separately and the juveniles sought out different wintering areas.

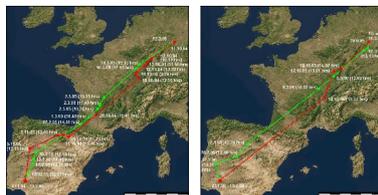
In addition to the telemetry results the transmitters provided further information on the individual identification of the Red Kites. By this means the outing of a pair from the breeding area by other Red Kites was recorded and a female, monitored over a five year period, had at least four different partners in this time.

Of the first nine birds fitted with transmitters, there were mortalities of seven kites, of two males and one female in the breeding area, a further male during migration and both juveniles and an adult female in winter quarters. One female is still carrying the transmitter (summer 2009) and, since the transmitter was deployed at the age of three years, has successfully raised young annually for the past seven years. The PTT of the ninth bird has been removed when it was retrapped.

Of the 12 Red Kites fitted with GPS-PTTs, 8 are still transmitting data at present (July 2009). Four birds have died of which two were found dead in winter quarters and two others died on migration.

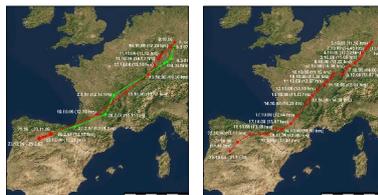


Summer stay of a 2007 born immature Red Kite (PTT 81341) in summer 2008 (30.6.-5.10, 257 yellow GPS fixes, home range 690 km², 95% MCP) and 2009 (21.3.-29.6., 330 red GPS fixes, home range 370 km², 95% MCP) in Thuringia. In comparison the home range of an adult breeding male (PTT 74998) (black coloured area, 95% MCP, 10 km²).



2004-2005

2005-2006



2006-2007

2008

An adult female (PTT 40868), which was tracked over five migration periods, spent both of the first two winters in the same area in south-west Spain and, in the third migration period, only flew as far as northern Spain. At the end of December a change in winter quarters of over 130 km took place. In the fourth year of the study it spent the winter in its breeding area. In the following year (2008) the female migrated a week earlier than in the first three years to western Spain, where it was found dead in December.



Winter home range (158 km²) of an adult female (PTT 74997) in Navarra (Northern Spain) based on 354 GPS fixes.

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