

The Lesser Kestrel *Falco naumanni*: review of the status of a globally threatened species

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ABSTRACT

A review is presented of the actual breeding numbers, population trends and breeding ranges of the Lesser Kestrel *Falco naumanni* in the (Western) Palearctic. New information is presented especially from the former USSR and reveals that substantial populations exist in this area. Although a decrease occurred also in the European part of the former USSR, it seems that Kazakhstan is one of the last strongholds where Lesser Kestrel populations remain stable. European populations decreased drastically: estimations show that breeding numbers dropped by at least 95% since the 1950s.

Methodological aspects are discussed and recommendations for future studies are given.

INTRODUCTION

The Lesser Kestrel is a small falcon with a Palearctic breeding distribution roughly between 30° and 55° N latitude. It is a migrating species, mainly wintering in Africa, south of the Sahara.

In the western part of the territories of this colonial bird the population size has decreased dramatically during the last three decades. Sharp declines have especially been reported from its European range. The species is known to exhibit fluctuations in population size (Glutz von Blotzheim *et al.* 1971), but the uniformity and extent of its decrease throughout the European range in the last 30 years are alarming.

In the first and second edition (Vincent 1966 resp. King 1981) of the red list of birds of the International Union for the Conservation of Nature and Natural Resources (IUCN), which were compiled by the International Council for Bird Preservation (ICBP), *Falco naumanni* was not listed yet. In their 'Birds to Watch' Collar and Andrew (1988) list 29 species which are globally threatened and regularly occur in Europe. One of these is the Lesser Kestrel. In the most recent ICBP overview of the conservation status of European birds, the Lesser Kestrel falls into priority category 1 (globally threatened) (ICBP, in prep.). In study report 41 of the ICBP 'The conservation of Western Lesser Kestrel Populations' (Biber 1990) a review is given of literature on the species and a conservation plan is put forward.

People became more and more aware that something needed to be done on habitat level, too. The dry grassland bird group of the ICBP suggested that 'a survey programme should be established to determine the European populations of all dry grassland bird species of conservation concern and monitor the effectiveness of conservation measures taken. This is urgently required

for the four globally threatened species: *Falco naumanni* (Lesser Kestrel), *Tetrax tetrax* (Little Bustard), *Otis tarda* (Great Bustard) and *Chettusia gregaria* (Sociable Plover)' (Goriup, Batten and Norton 1991).

Data on Lesser Kestrel populations are often fragmentary and anecdotal. This situation was recognized by Biber (1990), and although projects have been carried out to obtain population data of all European birds, the situation has not changed a great deal since then. Still in most countries there has been no census. Furthermore, the knowledge of the ecology of the species was very incomplete. This, together with its threatened status, was the direct incentive for the authors of this paper to set up a study on the Lesser Kestrel in Spain (Bijlsma *et al.* 1988, 1990; Hagememeijer 1993). Later, Spanish researchers have been working on the species.

During the Canterbury conference on the Biology and Conservation of Small Falcons in 1991, several papers (e.g. Hagemeijs 1993, Negro 1993) and a workshop were dedicated to the Lesser Kestrel. Valuable information was shared between the participants. In the workshop there was a unanimous intention to formulate an approach to assess the probable causes of the decline of the species. However, the discussion did not yet result in specific action.

The aim of this paper is to present new distribution and trend data of Lesser Kestrel populations in Europe and east into Kazakhstan and to match them against the data compiled by Biber (1990). Especially the status of the Lesser Kestrel in countries of the former USSR will be highlighted. The countries dealt with are listed in Table 1. These countries will be indicated as USSR or as Commonwealth of Independent States (CIS) in this paper depending upon the historical aspects. The authors are aware of the fact that this may not always be the most correct approach from a political and geographical point of view.

Table 1. Status of Lesser Kestrel *Falco naumanni* populations in the CIS.
Population size: census results are printed bold, estimations are printed in italics.
Trend indication: 0 = stable; -1 = slow decrease; -2 = fast decrease. Information given by: ¹ A. Abuladze, ² V. Ivanovsky, ³ R. Pfeffer, ⁴ I. Gorban, ⁵ A. Davygora,
** European Ornithological Atlas data.*

	Population size	trend indication	no longer breeding
Armenia ¹	50-100	0/-1	
Azerbaijan ¹	≤ 1000	0/-1	
Byelorussia ²	0		?
Georgia ¹	650	-1	
Kazakhstan ³	≥5 10,000	0	
Ukraine West ⁴	hundreds	-1/-2	
Moldavia*	13-130	?	
Russia:			
Ural South ⁵	<i>hundreds</i>	?	
Don District*	6-60	?	

SOURCES OF INFORMATION

Translation of Russian papers, a questionnaire sent round by the authors and personal contacts led to new insights into the status of the species in especially the CIS. Besides this, the 'European Ornithological Atlas Project' of the European Bird Census Council (EBCC) and the 'Dispersed Bird Species Project' of the ICBP gave rise to new information and to more accurate estimates of the population sizes in several countries in the rest of Europe.

DATA ON RANGE AND POPULATION SIZE

Nowadays, the Lesser Kestrel has a predominantly Mediterranean breeding distribution in Europe and Africa. More to the east it occurs mainly in the steppe and semi-desert zone of the CIS.

CIS

The Lesser Kestrel has been described by Dementiev & Gladkov (1951) as a common species for the USSR, occurring mainly in the Ukraine, Crimea, Caucasus and in Central Asia during the 1950s.

For the whole of the USSR, Zubarovsky (1977) described the breeding range as follows: the northern boundary is located at $49^{\circ} 50'$ in the Ukraine (an imaginary line from the city Uzgorod, via Winnicua, Uman, Walki (near Kharkov) to Kupiansk). To the east, this boundary moves to the north, lying at $52^{\circ} 30'$ (Kuibyshev district), at 56° (Tatar Republic), at 55° (Zauralia Mass) and at 56° (Krasnojarsk). Galushin (1981) suggested that "northern limits are likely to have moved 100-200 km to the south (from former range line across southern Poland to 49°N in the Ukraine, to 55°N in central Siberia)". Galushin (1991, 1993 in press) put the Lesser Kestrel in the category of species with markedly decreasing populations in the European part of the USSR, and noted that the species is close to disappearance.

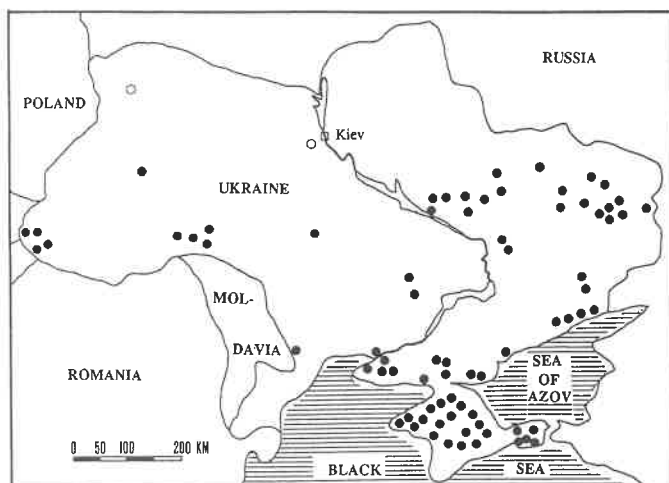
Below, specific information is given about the actual status and other details of the Lesser Kestrel in the various Republics of the CIS. Per region, historical data will be presented first, followed by recent information (if available).

Moldavia: Data from the late 1980s gathered for the European Ornithological Atlas, show that the Lesser Kestrel was present in 13 out of 20 UTM squares ($50 \times 50 \text{ km}$) (65%). The densities are low however: 1-10 pairs per square.

Ukraine: In Figure 1 is a map showing the breeding distribution in the Ukraine, according to Zubarovsky (1977). All breeding places known to have existed in the 18th, 19th and 20th century are included. However, most references are based on data gathered between 1900-1960 (especially in the 1950s). On the map, there are 76 regular and 2 occasional breeding places distinguished. Each dot may represent one breeding pair or a (large) colony. Therefore, the map gives an impression of distribution rather than of quantity.

The biggest colony, consisting of approximately 250 nests, was discovered in the Crimea near the Black Sea on Mt. Opyk in 1951. Of the occasional breeding places in Figure 1, one was based on the fact that some young falconets were found near Kiev in 1916 and were brought to the Zoo.

Figure 1. Distribution of the Lesser Kestrel *Falco naumanni* in the Ukraine (after Zubarovsky 1977).



Though the data in Figure 1 are incomplete, one might nevertheless conclude that the Crimea and the eastern part of the Ukraine must have been strongholds for the species, at least until the 1950s. According to Zubarovsky (1977), the species decreased since that time in Zaporozhe, the Don district, the E-Dinca district and the Kharkov-Voroshilovgrad region. A strong decrease took place in the steppe and north-eastern part of the Crimea.

Between 1982-1986 a census by means of questionnaires was carried out in 8 regions of 217 quarters each (1 quarter = 25 x 25 km) in the western Ukraine (1/4 of the total Ukraine). The results showed that 199 quarters were occupied (11%). The total population for the western Ukraine is estimated at a few hundred pairs. The species is declining in the Ukraine. (I. Gorban, pers. comm.).

Mostly, breeding pairs were found in trees (30-35% in *Salix*; 65-70% on *Pinus*), rarely on cliffs and buildings. Solitary breeding occurred most often, but sometimes colonies of 5-11 breeding pairs were found.

Data for the European Ornithological Atlas Project were also received from other parts of the Ukraine. The Lesser Kestrel was not on the list. Since recent information points out that the species does occur in the southeastern Ukraine, it is likely that it was not censused.

In the near future the status in the other parts of the Ukraine will be studied in more detail (I. Gorban, pers. comm.).

In spring 1992, some colonies of the Lesser Kestrel were found in the steep sand ridges bordering the Sivash lagoon area (north Crimea, Ukraine) during an expedition of the Working Group International Wader and Waterfowl Research (WIWO). The colonies were small (not larger than ten pairs) but were found in several places. The species was not specifically looked for. Numbers were not high (J. van der Winden, in litt.).

Russia: During the last 5 years (1987-1992) the Lesser Kestrel has been a rare breeder in the Orinburg region (Ural-south) in an area of 30.000 km². The population is estimated at a few hundred pairs. It is not clear whether the population is decreasing, stable or increasing (A. Davygora, pers. comm.). European Ornithological Atlas data from the area bordering the Ukraine in the east (e.g. Don Region) indicate that *Falco naumanni* occurs in 6 out of 74 censused squares (UTM 50x50 km). The number of breeding pairs does not exceed 10 per 250 km².

Georgia: In 1985, a number of 185 pairs was counted in an area of 1300 km². Extrapolation to an area of 4500 km² resulted in a total estimation of the population of about 700 pairs. Nowadays the population is estimated at 650 breeding pairs. Colonies consist of no more than 11 pairs (formerly 25 pairs). Figure 2 shows that the distribution of the species is restricted to the semi-desert area in the southwestern part of Georgia. Probably the Lesser Kestrel is a rare breeder near Tbilisi, the capital of Georgia. Nests are normally found in trees (old nests of *Pica pica*). (A. v. Abuladze, pers. comm.).

Armenia: The present number of breeding pairs is estimated at a total of 50-100 pairs. There is no reliable information about numbers in the past. The species is known to breed in the outermost northwestern part of Armenia; see Figure 2. (A. v. Abuladze, pers. comm.).

Azerbaijan: The present number of breeding pairs is estimated at several hundreds and less than 1,000 pairs. There is no reliable information about numbers in the past. Figure 2 shows that the breeding distribution stretches from the Mugan Steppe along the Caspian Sea, through the central valley of river Kura to the northwestern part of Azerbaijan, where it is connected with breeding grounds in Georgia and Armenia. (A. v. Abuladze, pers. comm.).

Kazakhstan: According to Gawrin *et al.* (1962) the Lesser Kestrel is breeding in Kazakhstan in steppe, wood-steppe, semi-deserts and deserts. Natural nest sites were used, mainly caves in small rocks and sometimes cliffs along a river. The species was not equally distributed in Kazakhstan, and the number of breeding pairs was fluctuating yearly and from place to place. The number of breeding pairs depended on the availability of food (invertebrates), especially in deserts where the density of the Lesser Kestrel was low. Figure 3 shows that the Lesser Kestrel was a common breeder between 1900 and 1960 in the Mangyshlak mountains (east of the Caspian Sea), along the rivers Emba and Ilel (especially in Shirkala), in the Turgay Steppe, further to the east in

the central hills of Kazakhstan, and in the western parts of the Altay mountains (in northwestern Kazakhstan) as far as Zaysan in the east. The Lesser Kestrel was a very common breeder in the Dzhungarskiy Alatau mountains (southeast of Lake Balkhash), in the Kendyktas and Chu-Illyskiy mountains (westwards of Alma-Ata) and in the Talasskiy Alatau and Karatau mountains (northeast of Tashkent). In the Chu-Illyskiye mountains a large colony was observed in subsequent years.

Figure 2. The present distribution of the Lesser Kestrel *Falco naumanni* in the Caucasus. Dots represent colonies of approximately 10 pairs in Georgia. There is no information about the locations of colonies in Armenia and Azerbaijan.

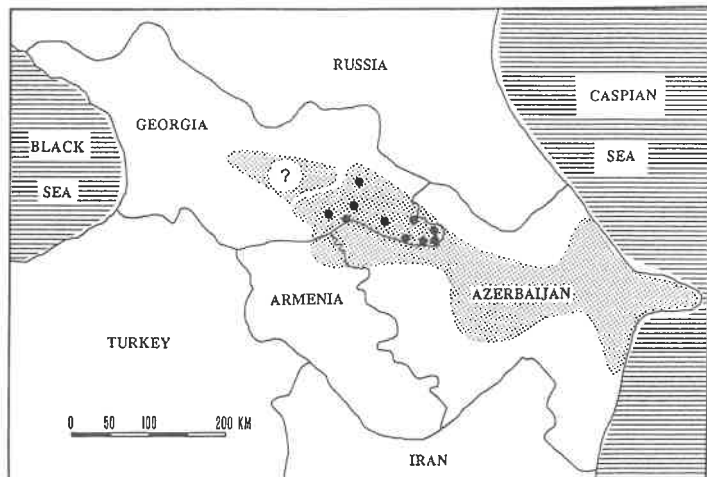
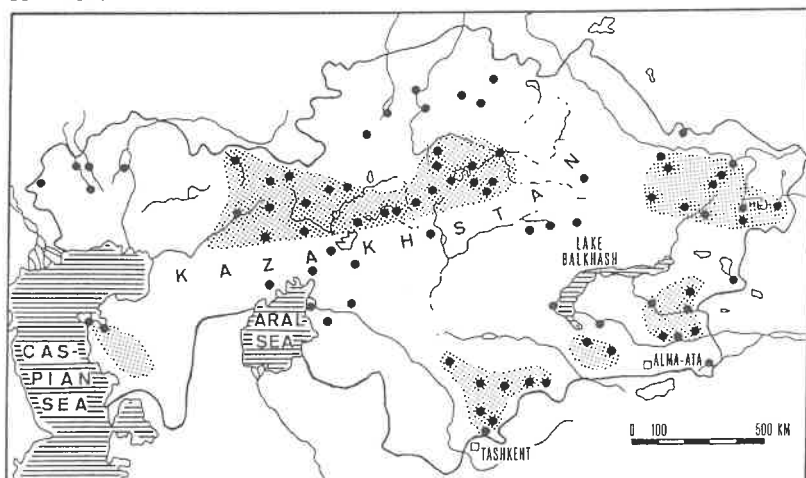


Figure 3. Distribution of the Lesser Kestrel *Falco naumanni* in Kazakhstan between 1990 and 1960 (after Gawrin *et al.* 1962). Dots represent colonies up to 20 pairs or solitary breeding pairs. In the stippled areas the species is common or very common.



This colony consisted of 60-70 pairs in 1934 and 1937, but in the intermediate year 1936 only 3-4 specimens were reported. Breeding places outside the stippled regions in Figure 3 are in most cases solitary breeding pairs, such as in the western part of Kazakhstan near the places Urda, Uzen and Goryachenskiy, north and eastwards of the Aral Sea, on the western banks of Lake Balkhash, and at several places in central and northern Kazakhstan. Gawrin *et al.* (1962) did not give,

however, a precise description of the categories "common and very common breeder" which can be translated in density figures. It is, therefore, impossible to give a reliable estimate of the total number of breeding pairs in these areas. The category "common breeder" can be described as a situation where numerous solitary breeding pairs and colonies up to 10 pairs occurred. Consequently, "very common" means that the density of solitary pairs and colonies was higher and/or the colonies were larger.

The present number of breeding pairs is estimated at several thousands, probably more than 10,000. It is the most common bird of prey in southern Kazakhstan. The population is not decreasing, but stable. It is not threatened by agricultural nor other human activities. The nests are situated in caves on rocky slopes or in graves on the plains. Breeding success is normal for the species: some years 1-3 chicks, in others 4-5 (even 6) chicks. The colonies consist of 10-15 pairs, sometimes 50-100 pairs. The density of the breeding pairs is highest in the south and the east of Kazakhstan. There are also suitable areas where no breeding pairs occur (R. Pfeffer, pers. comm.).

Table 1 sums up data for the countries from the CIS: census results, estimates of the number of breeding pairs, and trends of Lesser Kestrel populations. These data do not cover the whole breeding range in the CIS: only numbers in the western part of the Ukraine are included, for instance.

The Mediterranean area and Central Europe

In Europe and Africa the Lesser Kestrel has mainly a Mediterranean breeding distribution. It breeds in Spain, Portugal, France, Italy, former Yugoslavia, Romania, Bulgaria, Hungary, Greece and Turkey. Breeding is suspected for Albania (Grimmett & Jones 1989). In northern Africa, the species breeds in Morocco, Algeria, Tunisia and in Egypt. In the Near and Middle East, the Lesser Kestrel is a breeder in Syria, the Lebanon and Israel. In Table 2 the number of breeding pairs and trends of the Lesser Kestrel in these countries are given. This table indicates that the most important breeding areas known in the Mediterranean region are situated in Spain and Morocco (in the west), as well as in Greece and Turkey (in the east). Recent data (EBCC/ICBP) suggest that Italy still is an important breeding ground for the species.

Since the 1950s population numbers have decreased rapidly, at least by 95% in the European breeding range. To give some examples: **Austria**, from 280 pairs in 1960 (Cramp & Simmons 1980) to zero in 1984 (Biber 1990); **France**, from ca. 100 pairs in the 1950s to 9 pairs in 1987-1989 (Cheylan 1990). Stable in recent years; **Portugal**, from at least 700 pairs in the late 1940s to 100-200 pairs in 1990 (EBCC/ICBP). In Gonzalez & Merino (1990) a number of no more than 150 pairs is mentioned; **Spain**, from more than 100,000 pairs in the early 1960s to approximately 50,000 in the 1970s (Bijleveld 1974; Garzón 1977) and later the number decreased to between 4293 and 5089 pairs in 1988 (Gonzalez & Merino 1990).

A marked decrease in breeding range occurred all over Europe, especially in Poland, Czechoslovakia, and Austria, where the Lesser Kestrel is not breeding any more. In **Poland**, the species was even more common than *F. tinnunculus* near Lublin in 1850. The last breeding record in Poland is from 1968 (Glutz von Blotzheim 1971; Tomialojc 1990). A colony of approximately 300 pairs, breeding in an oak forest, was known between Lednice and Podivín in **Czechoslovakia** from 1889 until 1904-1906. The colony disappeared after the nesting trees had been cut down (Glutz von Blotzheim 1971). Until the second half of this century, the Lesser Kestrel was a rare breeder in Czechoslovakia. The last known breeding place was near Rožnava, where a family of Lesser Kestrels was observed on 18 July 1956 (Glutz von Blotzheim 1971; Ferianc 1977). The species is absent in the breeding atlas of Czechoslovakian birds (Stastný 1987).

In its Central European range, the Lesser Kestrel was a regular breeder in southern **Hungary** in the beginning of this century; in the 1960s only a few breeding attempts were reported (Glutz von Blotzheim 1971). However, Márkus (1991) indicated that the species is still breeding in Hungary and estimated the population size at between 1 and 10 pairs. The most recent estimate amounts to 10-20 pairs (EBCC/ICBP). In **Romania** the Lesser Kestrel was reported from 15 out of 110 UTM squares (14%). Only in one square numbers were estimated (10-100). For the whole country the estimate amounts to 50-100. It is striking to see that the trend for Romania was reported to be positive. It is the only country with a positive trend indication (EBCC/ICBP). Glutz von Blotzheim *et al.* (1971) reported a decline in the beginning of this century and disappearance from several areas. The positive trend may refer to the recent situation. For **Bulgaria** a number of 53 pairs was given (Iankov *et al.* in this volume). The estimate in the EBCC/ICBP database amounts to 60-

Table 2: Status of Western Palearctic breeding populations of the Lesser Kestrel *Falco naumanni*:

Figures of Biber (1990) are matched against latest available information. All countries with breeding records of Lesser Kestrels are listed. Latest information based on EBCC/ICBP database. @: Data for Greece new estimate by Hallmann (pers. comm. 1993)

Population size: * = census result, ** = estimation, X = no quantitative information available, but species is present, (X) = no recent information available, but species formerly present;

Trend indication over the period from 1970: -1 = decrease in number of 20-50%; -2 = decrease > 50%; - = decrease not quantified; 0 = stable; ? = unknown.

	Biber (1990)		Current data	
	Population size	Trend indication (E=extinct)	Population estimate EBCC/ICBP	Trend indication EBCC/ICBP
Albania		E	?	
Algeria	X	?		
Austria		E	0	
Bulgaria	<100**	-1	60-120	-1
Cyprus		E	0	
Czechoslovakia		E	0	
Egypt	X	?		
France	10*	-2	10	-2
Greece	<2000**	-1	1600@	-1
Hungary		E	10-20	0
Iran	X	?		
Iraq	X	?		
Israel	X	-2		
Italy	200-400**	-1	500-1000	-1
Jordan	(X)	?		
Lebanon	(X)	?		
Libya	(X)	?		
Morocco	1000**	-		
Oman	(X)	?		
Poland		E	0	
Portugal	300**	-	100-200	-2
Romania	120-130**	?	50-100	+1
Saudi Arabia	(X)	?		
Spain	4000-5000*(**)	-2	4239-5089	-2
Syria	X	?		
Tunisia	<100**	?		
Turkey	500-2000**	?	500-5000	?
Former USSR	X	?	see table 1	
Yemen	(X)	?		
Former Yugoslavia	10**	-2	55-110	0/-1

120. **Greece** still is an important breeding ground for the species. The European Ornithological Atlas data indicate that 60% of all UTM squares are occupied. This proportion approaches 100% when only the mainland squares are taken into account. The densities reported are low however (1-10 per 250 km² in most cases). The total population is estimated at 1000-1500 pairs. However, there is reason to believe that the numbers are slightly underestimated. Hallmann (1985) mentioned a number of 2000 for the situation around 1982 and indicated that the species was declining. Later this estimate was thought to be below the actual number (Biber 1990). Especially in the central mainland area, Thessalia and Macedonia, numbers are believed to be higher than reported for the

Atlas. A revised estimate of 1600 pairs is suggested by Hallmann (pers. comm. 1993). The numbers yielded for **Italy** by the European breeding bird projects (500-1000) are remarkably higher than the numbers mentioned in Biber (1990) (200-400).

No proper estimate of the **Turkish** population has been made. The Ornithological Society for the Middle East (OSME) has mapped the known distribution until 1990. Since then, incidental observations suggest that the species concentrates in Anatolia, the central plateau, surrounded by the cities Ankara - Eskisehir - Akselin - Konya - Karaman - Erigli - Nigdi - Kayseri - Kirsehir - Kirikkale. Some regions in this area turned out to have 15 pairs in every village. The total Turkish Lesser Kestrel population may well be larger than 5000 pairs. More research is being carried out to assess the numbers in Turkey (Yarar & Magnin, in litt.).

DISCUSSION

Although valuable new information has become available from the breeding grounds of the Lesser Kestrel the picture of its distribution still is far from complete. Data on population sizes and trends are even more sparsely available. Comparison of the new data regarding its distribution, presented in the two tables, shows that Kazakhstan nowadays probably is the most important stronghold. The dimensions of this country are enormous (2.7 million km²). The regions in which the Lesser Kestrel is indicated still to be a common breeder extend over an area of about 510,000 km². This is about the size of the whole of Spain. Furthermore, the species is believed to be very common in an area of about 110,000 km² in the southeastern Kazakhstan mountains. Colonies of 50 to 100 pairs are still reported. A cautious estimate for Kazakhstan as a whole would be 20,000 pairs.

The awareness that the distribution of the Lesser Kestrel should be further studied was one of the major results of the Canterbury workshop. This most urgently applies to Turkey, the CIS and the countries in the Middle East. A census of the species over a large area brings along specific problems. As an example, the census carried out in Spain in 1988 was very valuable but in our judgment underestimated the real number. There are several reasons for this. Firstly, colonies can be hard to find. During a very intensive study in Extremadura, Spain, in 1987, it took us several weeks to locate most of the colonies in a restricted area around Cáceres (Bijlsma *et al.* 1988, Hagemeyer 1993). New breeding pairs and colonies were found until the end of the breeding season. This shows that colonies and solitary breeding pairs can easily be overlooked. Secondly, to find out the exact number of breeding pairs in a (large) colony is very difficult by observation only. Inspection of nests sometimes yielded a 100% higher number than was estimated by looking at the number of birds flying into a colony (although we observed those colonies for several days before we looked for nest sites). The extent of underestimation varies with the type of colony. The bias will be small in colonies where the entrances of individual nests are separate and easily visible (walls with holes, for example). However, in many cases nests were situated under tiles with shared entrances (in one case a single entrance led to twelve nests). Only by individual colour marking or inspection of individual nests is it possible to assess the exact number of breeding pairs. Of course, this goes beyond the scope of large scale censuses. Thirdly, the proportion of solitary breeding pairs seems to have increased while the total number decreased. These pairs are difficult to detect, which may have resulted in a further underestimation.

A Lesser Kestrel census is being set up for the spring of 1993 in Turkey, stimulated by the national nature conservation agency (DHKD). This census will include a methodological pilot study and hopefully will yield a valuable method for future census work in other areas. Special attention will be paid to a calibration study to correct for the underestimation of colony size. We recommend that this example should be followed elsewhere. The trends of Lesser Kestrel breeding populations clearly show that this species is seriously threatened worldwide. To shed more light on changes in population size, it is necessary to carry out censuses (monitoring with intervals of 5 or 10 years) on important breeding grounds all over its range. Even more regular inventories should be carried out in specific areas, such as Important Bird Areas (Grimmett & Jones 1989), but also in unprotected and not designated areas where the species is still vulnerable. Changes in cultivation or other human activities should be registered in those areas to get an insight into the threats the Lesser Kestrel is exposed to.

Spain, with its recent tradition of attention to the species would be a perfect starting point for this. 1993 is a crucial year in this respect since the Spanish Ornithological Society (SEO) announced it as the year of the Lesser Kestrel.

Other aspects the Canterbury workshop brought up as important subjects to be studied include: problems with the foraging habitat, pesticide contamination affecting reproduction success and food availability, problems with breeding colonies (nesting facilities in general), winter ecology and how to develop and coordinate an international conservation strategy. From this list the winter situation seems to be the most unknown aspect. Knowledge on this might shed light on important parameters including mortality and food availability on the wintering grounds.

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