Species Action Plan for the lesser kestrel *Falco naumanni* in the European Union

Revised

Prepared by:

SEO/BirdLife

BirdLife INTERNATIONAL

On behalf of the European Commission

Species action plan for the lesser kestrel *Falco naumanni* in the European Union

The revision of the action plan was commissioned by the European Commission and prepared by BirdLife International as subcontractor to the "N2K Group" in the frame of Service Contract N#070307/2007/488316/SER/B2 "Technical and scientific support in relation to the implementation of the 92/43 'Habitats' and 79/409 'Birds' Directives".

Compilers

Ana Iñigo, SEO/BirdLife, ainigo@seo.org; Boris Barov, BirdLife International, boris.barov@birdlife.org

Contributors

Beatriz Estanque	Portugal	LPN
Bousbouras Dimitris	Greece	Biologist
Carlos Rodríguez	Spain	EBD/CSIC
David Serrano	Spain	EBD/CSIC
Elena Kmetova	Bulgaria	Green Balkans Federation
Fernando Díez	Spain	SOMACYL (Castilla y León)
José Miguel Aparicio	Spain	IREC (CSIC-UCLM-JCCM)
Maurizio Sarà	Italy	Universita de Palermo, Dipartimento Biol. Anim.
Mia Derhé	UK	BirdLife International
Pedro Rocha	Portugal	ICNB
Pepe Antolín	Spain	DEMA
Philippe Pillard	France	LPO/BirdLife France
Ricardo Gómez Calmaestra	Spain	DG Medio Natural y Política Forestal, Ministerio de Medio Ambiente y Medio Rural y Marino
Rigas Tsiakiris	Greece	HOS
Rita Alcazar	Portugal	LPN

Milestones in the Production of the Plan

Workshop: 07-08 July 2010, Madrid, Spain
Draft 1: 31 July 2010, submitted to the EC and Member States for consultation
Draft 2: 31 March 2011, submitted to the European Commission
Final version: 21 April 2011, submitted to the European Commission

International Species Working Group

n/a

Reviews

This Action Plan should be reviewed and updated every ten years (next review in 2020) unless a sudden change of the population trend requires urgent revision.

Recommended citation

Iñigo, A., B. Barov (2010). Action plan for the lesser kestrel *Falco naumanni* in the European Union, 55 p. SEO|BirdLife and BirdLife International for the European Commission.

Geographical scope

This Action Plan covers the regular breeding range states of the lesser kestrel *Falco naumanni* in Europe including 16 EU Member States (Table 1).

Figure 1 Global distribution of the lesser kestrel *Falco naumanni*

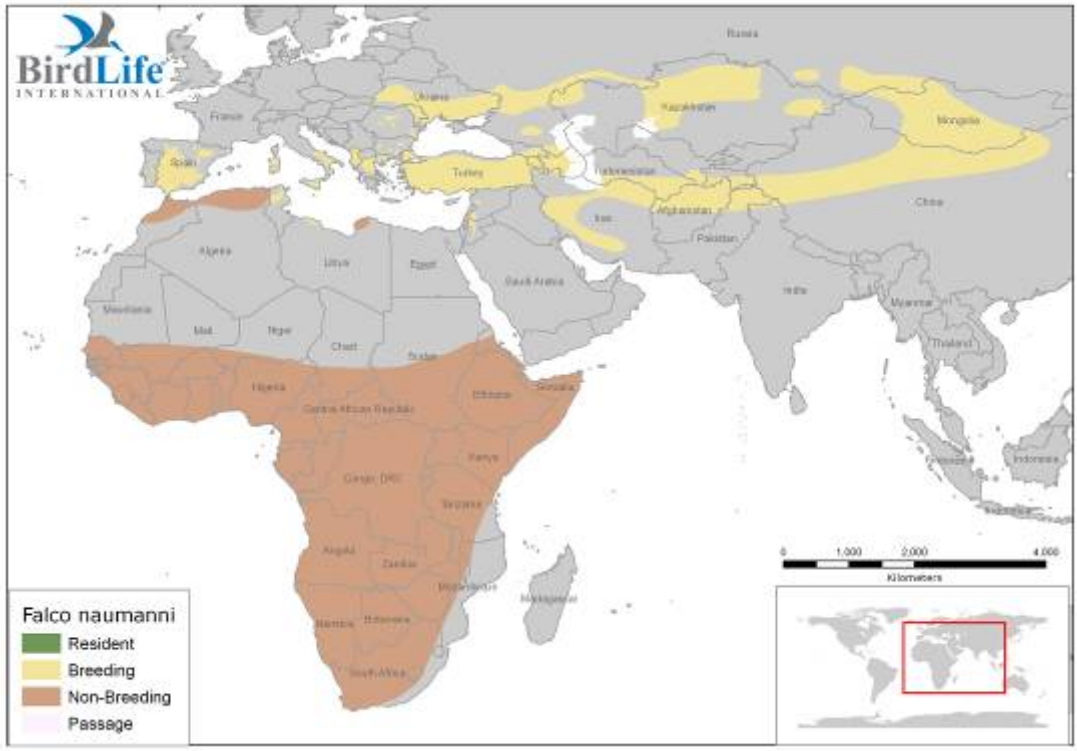


Table 1: European range states for which this Action Plan is relevant, countries in bold having most important populations

Breeding		Migrating	Wintering
Albania	Montenegro	**Azerbaijan**	Malta
Armenia	**Portugal**	Bulgaria	**Spain**
Azerbaijan	**Russia (European part)**	Croatia	**Turkey**
Bosnia and Herzegovina	Romania	Cyprus	**Italy**
Bulgaria	Serbia	Georgia	
Croatia	**Spain**	Gibraltar	
Cyprus	**Turkey**	**Italy**	
France	Ukraine	Romania	
Georgia		Slovenia	
Gibraltar		**Spain**	
Greece		**Turkey**	
Italy		Ukraine	
Macedonia, FYR		**Greece**	
Moldova		France	

Table of contents

0 - EXECUTIVE SUMMARY

The lesser kestrel is a small falcon distributed in the Palaearctic south of 55°N which experienced steep population declines in the second half of the 20th century. Its breeding population seems to be stable and even growing now, especially in SW Europe with an approximate estimate for the European breeding range of 29,900-34,500 pairs. Spain holds the most important breeding population in Europe, followed by Turkey, Greece and Italy. The European and Asian populations are fully migratory to Sub-Saharan Africa, from Senegal, Mauritania and West Mali and Niger to Eastern and Southern Africa.

The main cause for the decline of the lesser kestrel population in its Palaearctic breeding grounds has been habitat degradation, mainly because of agricultural intensification and the associated land use changes. The replacement of grazed grasslands, extensive dry cereal and pulses with taller and denser crops (e.g. sunflower, maize, vineyards and other perennial crops) has lead to two important pressures: reduced abundance of large insects and decreased access to prey. The use of pesticides reduced prey populations further. Some formerly declining populations (e.g. in France and the Iberian Peninsula) have now increased following the implementation of conservation measures.

Goal

The goal of Action Plan is to improve the status of the lesser kestrel to a point which would allow it to be down listed to Least Concern on the IUCN Red List.

Objective 1: Ensure positive population trend of the breeding populations of the species in the EU for the next 10 years.

Objective 2: Maintain the present and begin to restore the former breeding range by ensuring suitable habitat and reinforcing populations.

To achieve these objectives, conservation actions are needed to:

- increase the breeding success through management of the foraging habitats;
- improve survival of juveniles by investigating and addressing threats in the non-breeding range;
- restore breeding and foraging habitats in the breeding range to support the recovery of local populations;
- Improve international coordination for monitoring, research and conservation action.

Table 2 Recent breeding population estimates of the lesser kestrel in Europe.

Country	Population at the time of the 1996 SAP (pairs)	Year	Population at the 2004 review (pairs)	Year	Current population (pairs)	Year
Albania*	100-1000	1994	0-20	1998-2002	-	-
Armenia	-	-	15-60	2000-2002	20 - 35	2003-2010
Azerbaijan	-	-	500-3,000	1996-2000	1,000	2007-2010
Bosnia & Herz.	-	-	0-250	1990-2000	10 - 50	2010
Bulgaria	57-100	1994	0-5	1995-2000	0	2000-2010
Croatia	5-10	1994	0	2002	5-15	2010
Cyprus	-	-	-	-	0	2005 - 2009
France	31-33	1994	72	2003	259	2009
Georgia	700	1994	20-100	1994-2003	80 - 120[1]	2005-2008
Gibraltar*	-	-	4-10	2000	-	-
Greece	2,700-3,240	1994/5	2,000-3,480	2000	2,480 - 2,900	2004-2009
Italy	1,300–1,500	1994	3,640-3,840	2001	4,500 - 5,500	2007-2009
Macedonia	-	-	1,500-3,000	2002	1,000 - 1,500	2002-2003
Moldova*	7-12	1989	3-6	1990-2000	-	-
Montenegro	-	-	0-6	1990-2002	0	1990-2010
Portugal[2]	155-158	1994	286-291	2001	480-484	2005
Romania	120-130	1989	0-5	1990-2002	0 - 2	2010
Russia (European)*	70-150	1994	300-400	2004	1,100[3]	2009
Serbia	-	-	0-6	1990-2002	0	2009
Slovenia	5-10	1994	0	1994-2000	0	1994-2009
Spain	5,000-8,000	1994	12,000-20,000	1994-2002	14,072-14,686 pairs[4]	1997-2005
Turkey	1,500-3,500	1994	5,000-7,000	2001	5,000 - 7,000	2004
Ukraine	200-300	1994	5-10	1990-2000	0	2004-2010

- Indicates no data available
[1] Data from Pillard et al., LPO, 2009
[2] Data from Rocha, P., 2008
[3] Data from Galushin et al., 2009
[4] Data from SEO, 2008.

1 - BIOLOGICAL ASSESSMENT

Taxonomy and biogeographic populations

Phylum: Chordata
Class: Aves
Order: Accipitriformes
Family: Falconiformes
Genus: *Falco*
Species: *Falco naumanni* (Fleischer, 1818)

The **lesser kestrel** (*Falco naumanni*) is a monotypic species with no recognized subspecies. Genetic evidence suggests (Groombridge *et al.,* 2002) that despite their similar appearance the lesser kestrel is not closely related to the common kestrel *Falco tinnunculus.*

Distribution throughout the annual cycle

The breeding range is very large, covering the Western Palaearctic south of 55°N (Table 1). The species is a typical long-distance migrant to sub-Saharan Africa although a small number of European birds remain in Spain, Southern Turkey and Malta. The largest known congregations of wintering lesser kestrels have been found in Senegal, Mauritania, West Mali and Niger (Pillard *et al.,* 2004; Pillard *et al.,* 2005), and few birds tagged with geolocators in Southern Spain were found overwintering in these areas (Rodriguez *et al.,* 2009); birds from the Eastern European and Asian populations congregate in Southern Africa: Botswana, Namibia, South Africa (BirdLife International 2008; Cramp and Simmons 1987) where roosts are regularly found and counted (Van Zyl, *pers. com.*).

On migration lesser kestrels fly in small groups or in loose flocks sometimes of hundreds individuals at altitudes up to 2000 m. Flocks may roost together in trees and the roosting places are very important also during the breeding season and especially before migration when they moult (Olea et al., 2004). The non-breeding parts of the population (floaters) also congregate at common roosts although their role is not well known. Altogether this gregarious behaviour makes the roost sites and the habitats nearby very important for the conservation of the species.

Habitat requirements

In the European range lesser kestrels are found in lowland areas with steppe-like grasslands and extensive crops. It breeds in human settlements with colonies located in walls or roofs of old houses, farm buildings, castles or churches; outside of settlements, rock and sand cliffs, quarries and heaps of stones are most commonly used. All nesting locations must provide access (within range 1-3 km) to open areas for hunting, usually in steppe-like habitats, natural or managed grasslands and non-intensively cultivated land.

Large insects, mainly Orthoptera and Coleoptera constitute the bulk of the diet which also includes small vertebrates (voles and shrews, but also birds and lizards) that are important in the early stage of breeding period. In Spain, different prey items predominate at different stages of the breeding season and their abundance may have influence on the breeding success (Rodriguez *et al.,* 2010). The prey is often taken on the ground. Therefore prey diversity and abundance, and access to prey are the key habitat features important for management.

Presence of single trees or wires (for roosting, resting, etc.) near the colonies seems favourable, especially in the post-fledging and pre-migratory period (De Frutos *et al*., 2009; Franco *et al*., 2005). Post-breeding communal roosts of adult and juvenile individuals are important element of their breeding cycle, in late July to late September (pre migration). Roosts are big stop over sites, concentrating large parts of the breeding population. Favourable conditions for roosting and hunting are necessary to allow the species to prepare for migration. The species is quite conservative and uses the same trees over many years. Known roost sites should be protected and availability of suitable foraging habitats within 9 km around them should be provided through management (De Frutos *et al.,* 2009). Communal roosts (sometimes huge) are equally important in the non-breeding range. A roost discovered in Senegal held 28,600 lesser kestrels and 16,000 African swallow-tailed kites *Chelictinia riocourii* (Pillard *et al.,* 2009).

Survival and productivity

The clutch size is usually 3–5 eggs and both parents take turns incubating for 28 days. The chicks hatch asynchronously and the last one is often smaller and vulnerable to food shortages. The breeding success largely depends on the available quality and quantity of food resources and on weather factors (Rodriguez and Bustamante 2003). In some populations (e.g. Ebro valley, North-eastern Spain) nest predation is important factor that vary between colonies and years (Serrano *et al.,* 2005). In Portugal for the period between 2003 and 2006 breeding success varied between 54% and 76% (Henriques *et al.,* 2006).

Productivity for the Mediterranean populations is in general 1-4 flying chicks per breeding pair confirmed e.g. 1.71- 2.06 in Portugal for the period between 2003 and 2006 (Henriques *et al.,* 2006), between 1.1 to 4.3 in Spain (Rodríguez and Bustamante

2003). Fledging rate in South Italy is 81.42 ± 29.82% (n = 69) (Mascara & Sarà, 2006). In a fast-growing population of South Italy, the mean ± Standard Error, egg survival (Kaplan-Meier –product-limit analysis) is 0.700 ± 0.016 and the mean ± SE nestling survival is 0.703±0.027 (Sarà *unpubl*.).

Recent studies (Milhoub *et al*. 2010) suggest that survival rates of adults are relatively high (0.718 ± 0.013), and dependent on predation rates and colony size (higher in bigger colonies) (Serrano *et al.,* 2005). Yearling survival positively correlated with rainfalls in the Sahel, suggesting a high dependence of juveniles upon the wintering conditions (Milhoub *et al.*, 2010). With relatively high and constant adult survival, as reported in several Western European populations (Serrano *et al*., 2005, Hiraldo *et al.,* 1996, Prugnolle *et al*., 2003), the population growth rate depends on **productivity** (local conditions at breeding areas) and **recruitment/juvenile survival** (Sahel rainfalls).

Population size and trend

The European population is estimated at 25,000-42,000 pairs, with roughly half of these in Spain (BirdLife International, 2010). In 2010, population information was collected through a questionnaire for the evaluation of the 1996 Species Action Plan which led to an approximate estimate for the European breeding population of 29,900-34,500 pairs (Table 3).

In Spain, national census has not been done recently. Between 1994 and 2000 all the autonomous communities have carried out censuses and the total population was estimated at 12,000 breeding pairs (Atienza *et al*., 2001). Some studies claim that the methodology of the census underestimated the actual population size, and it was closer to 20,000 pairs. More recent regional censuses have found 4,431 pairs in Andalusia (2007), 3,355 in Castilla y León (2005), 290 pairs in Madrid (2008) (Zuasti *et al*., 2005, González, *pers. com* 2008). The current estimate for Spain of 14,072-14,686 pairs (SEO, 2008) was obtained through compilation of different censuses carried out at regional level between 2000 and 2007 and it is probably an underestimation (Iñigo *pers. com*).Other populations in South-western Europe (e.g. Portugal, France and Italy) are estimated more accurately and recent data suggests that they are at least stable or increasing (some steeply, e.g. Italy, Mascara and Sarà, 2006). In SE Europe, where the estimates are less accurate, stability or slow declines are reported, but the species has gone extinct in several countries since the 1990. The largest populations in SE Europe are in Greece (2,480-2,900 pairs) and Macedonia, FYR (1,000-1,500 pairs) but the origin of a recently observed roosting flock in Southern Albania of 4,000-6,000 individuals needs to be confirmed (Minias *et al.,* 2009).

The important Turkish population, estimated at 5-7,000 pairs, is yet poorly known and its actual parameters are an important research priority. Recent publications from European Russia report 1100 pairs in two main regions (NE Caucasus and lower Volga basin). The total Russian population is estimated at less than 1600 pairs (Galushin *et al*.,

2008). In Kazakhstan, according to the same authors, the population is 5-7 times higher than in Russia and the trend of the lesser kestrel in Kazakhstan is believed to be positive. On the Caucasus a single colony in Armenia is known.

In North Africa the lesser kestrel is uncommon to locally common passage migrant and breeding migrant (occasionally resident). Survey carried out from 1998 to 2007 in Northern Morocco showed a significant increase probably linked to the long-season activity of big-size insects (Orthopera and Odonata) and mice, combined with availability of favourable nest sites (Rguibi and Cherkaoui, 2008).

Co-ordinated counts of the South African wintering population recorded 118,000 birds in 2005/2006 and 98.000 birds in 2006/2007, but it is not clear whether this represents a genuine reduction in numbers or whether the missing birds were wintering elsewhere, very likely in East Africa (Van Zyl, *in litt.*).

Population viability analysis

A demographic model and sensitivity analyses have been performed by Hiraldo *et al.* (1996) on a population is Southern Spain. It indicated that population growth was most sensitive to changes in adult survival, followed by juvenile survival, productivity of fledglings, proportion of adults that attempt breeding and age at first breeding. In the same time, productivity was found to be less than half its potential maximum due to massive nestling mortality by starvation. Thus, increasing food availability around the breeding colonies through habitat management or introducing the species in areas containing suitable habitat may substantially increase productivity. The authors recommended the combination of these two approaches to maximize the long-term survival of lesser kestrel populations (Hiraldo *et al.,* 1996).

Table 3 Population size and trend by country

Country	Population at the time of the 1996 SAP (pairs)	Year	Population at the 2004 review (pairs)	Year	Current population (pairs)	Year	Breeding trend	Reference
Albania*	100-1000	1994	0-20	1998-2002	-	-	-	-
Armenia	-	-	15-60	2000-2002	20 - 35	2003-2010	30 - 80% Increasing	[1]
Azerbaijan	-	-	500-3,000	1996-2000	1,000	2007-2010	Fluctuating	[2]
Bosnia & HG	-	-	0-250	1990-2000	10 - 50	2010	Unknown	
Bulgaria	57-100	1994	0-5	1995-2000	0	2000-2010	Decreasing	[3]
Croatia	5-10	1994	0	2002	>20	2010	Unknown	[4]
Cyprus	-	-	-	-	0	2005 - 2009	Unknown	
Czech Republic	-	-	-	-	0	2001-2003	Stable	[5]
France	31-33	1994	72	2003	259	2009	370-432% Increasing	[6]
Georgia	700	1994	20-100	1994-2003	80 - 120[7]	2005-2008	10 - 15% Decreasing	[8]
Gibraltar*	-	-	4-10	2000	-	-	?	?
Greece	2,700-3,240	1994/5	2,000-3,480	2000	2,480 - 2,900	2004-2009	Small decrease	
Hungary	-	-	-	-	0	2000-2010		
Italy	1,300–1,500	1994	3,640-3,840	2001	4,500 - 5,500	2007-2009	19 - 31% Increasing	[9]
Macedonia	-	-	1,500-3,000	2002	1,000 - 1,500	2002-2003	Decreasing	[10]
Moldova*	7-12	1989	3-6	1990-2000	-	-	-	-
Montenegro	-	-	0-6	1990-	0	1990-	Unknown	

* Indicates countries for which no information on population status was received
- Indicates no data available

[1] www.aspbirds.org
[2] Survey conducted in 2007-2008.with >50 breeding colonies and 20 nests in average recorded. Survey covered < 20% of suitable habitat.
[3] Atlas of Breeding Birds in Bulgaria (BSPB, 2007) and Green Balkans Ornithological Database (2010)
[4] Personal observation
[5] Stastny et al., 2006.
[6] Data from LPO
[7] Data from Pilard et al., 2008
[8] IBA project in Georgia. 2005-2008
[9] Sigismondi et al., 2001; Mascara & Sarà, 2006; Sigismondi et al., 2003 ; Bux, 2008 ; Sarà, 2008.
[10] unpublished data of M. Velevski, B. stumberger, T. Lisicanec, E. Stoynov, B. Grubac

* Indicates countries for which no information on population status was received
- Indicates no data available

				2002		2010		
Poland	-	-	-	-	0	2009		[1]
Portugal	150	1994	349-376	2003	427 - 462	2006	54% Increasing	[2]
Romania	120-130	1989	0-5	1990-2002	0 - 2	2010	Decreasing	[3]
Russia (European)*	70-150	1994	300-400	2004	1,100[4]	2009	Increasing	
Serbia	-	-	0-6	1990-2002	0	2009	Decreasing	[5]
Slovakia	-	-	-	-	0	2000-2009	Stable	
Slovenia	5-10	1994	0	1994-2000	0	1994-2009		[6]
Spain*	5,000-8,000	1994	12,000-20,000	1994-2002	14,072-14,686 pairs[7]	1997-2005	8.6% Increasing	[8]
Turkey	1,500-3,500	1994	5,000-7,000	2001	5,000 - 7,000	2004	21 - 30% Decreasing	[9]
Ukraine	200-300	1994	5-10	1990-2000	0	2004-2010	Unknown	[10]

[1] Once a sporadic breeder, now accidental. Tomialojc & Stawarczyk, 2003; Komisja Faunistyczna, 2008.
[2] Henriques et al., 2006.
[3] published record for 1-2 breeding pairs in the Danube Delta at the beginning of the 2000s; no other confirmed/records of breeding during the last 20 years
[4] Data from Galushin et al., 2009
[5] Grubac, pers. comm..
[6] Personal observations from members of DOPPS, Natural History Museum and Nature Conservation Institute of the Rep. of Slovenia
[7] Data from SEO, 2008.
[8] Del Moral et al., 2010.
[9] Kılıç & Eken, 2004
[10] Data on numbers of 1-2 breeding pairs in Donetsk Region were not proved by checking

2 - THREATS

General overview of threats

The main cause for the decline of the lesser kestrel has been habitat degradation, mainly as a result of agricultural intensification and the associated land use changes. The replacement of grazed grasslands, extensive dry cereal, and pulses with taller and denser crops (e.g. sunflower, maize, vineyards, and other perennial plantations) has lead to two important pressures: reduced abundance of large insects and decreased access to prey. The use of pesticides in modern farming has not been proven to have great direct effect on the lesser kestrels, but reduces prey populations and thus has an indirect effect (Donázar *et al*., 1993, Tella *et al*., 1998). Factors affecting the breeding sites, especially the availability of suitable nest chambers (Franco *et al*., 2005), and the presence of competitors and predators (Serrano *et al.,* 2004), have also contributed to local declines. Although not many aspects of the reproductive biology and demography have been well studied in most part of the range, with its small body size and relatively high productivity, the lesser kestrel can be described as a typical r-strategist, responding to changes in the environment with quick population increases or more often decreases. This explains why some declining populations in France and the Iberian peninsula have rapidly increased after the implementation of conservation measures.

List of critical and important threats

A) Factors reducing the breeding success

Those factors are mainly results of agricultural intensification and the associated degradation of foraging habitats. Brood mortality is mainly caused by starvation (Hiraldo *et al*. 1996) and to a less extent other factors (e.g. heat waves).

1. **Shortage of prey**

- **Pesticides use -** Application of excessive amounts or methods in agricultural and rural areas, e.g. aerial spraying. Evidence suggests that the direct impact on the species may be low (lethal levels in sampled tissues were not reached) but pesticides heavily reduce prey abundance.
- **Loss of habitat diversity in the farmland -** Abandonment of crop rotations and cultivation of fallow land; *loss of set-asides*, expansion of perennial crops such as intensive olive plantations, vineyards and other perennial crops in the Mediterranean is often on the expense of less productive arable lands, grasslands or traditional perennials (e.g. all leading to loss of biodiversity).

- **Drainage of wetlands -** for irrigation or conversion to cultivated land - leads to loss of vegetation and natural habitats rich in insects.

Impact: High

2. **Higher energetic costs of hunting** due to habitat loss in the vicinity of the colony, leading to increased distance between colony and hunting grounds. The main threats leading to such habitat loss are:

- **Development of infrastructure and growth of urbanized** areas in the rural areas. Road and railway transport infrastructures.
- **Irrigation of arable land** leads to substitution of crops which in turn hosts less favourite preys and loss of favourable foraging habitat.
- **Afforestation** of low-productive farmland with wood plantations was a significant cause of habitat loss in Portugal and Italy. Nowadays afforestation is more limited and has more constraints.
- In Portugal **overgrazing** (namely in very dry years) is detrimental for prey abundance.

Impact: High

3. **Reduced prey accessibility**

- Changes in the vegetation structure such as overgrowth of grasslands and fallow land because of **land abandonment** and **reduced grazing**. Associated expansion of shrubs.
- **Substitution of traditional dry cereal** with taller, denser crops and perennial hop plantations.

Impact: Medium

4. **Loss of suitable breeding sites**

- The **abandonment and collapse** of rural buildings e.g. farm houses, towers. In Portugal this is the main threat for colony conservation.
- On the other hand **restoration works of old buildings** and sanitation of public buildings, principally in cities and towns, also cause loss of nesting sites and important disturbance during the breeding season.
- Considerable amount of work has been carried out to provide alternative nesting sites (Catry *et al.,* 2009) but they require regular maintenance (cleaning, restoration) or replacement.

Impact: Medium

5. **Increased brood mortality**

- Deliberate destruction of nest sites despite of the legal protection. Due to sanitary concerns, the noise produced by the birds or simply ignorance. Despite the general peaceful co-existence with man, the levels of awareness of the legal protection and conservation status of the species need to be increased.
- Nest predation is an important cause of brood mortality in some populations (e.g. Serrano *et al.*, 2004, Catry *et al.*, 2009).

Impact: Medium

B) Factors increasing the adult mortality

6. **Decreased fitness in critical periods**

- **Loss of pre-migration roosting sites** –When such roosting sites are destroyed, this part of the life cycle of the species is disrupted, which may lead to reduced fitness and likely, higher mortality during migration. Roosting trees have been cut to prevent birds from roosting in settlements (e.g. Ioanina, R Tsiakiris, *pers. com.*) in mixed roosts with Corvids. Similarly, due to sanitary considerations a group of pine trees in a school yard in Puglia has been cut to prevent roosting (M. Sarà, *pers. com*.).

Impact: Unknown

7. **Electrocution in power lines, wind farms or linear infrastructures**

- In some countries, power lines are a confirmed threat to lesser kestrels (e.g. in Portugal 16 birds were found in 1 month electrocuted).
- Wind farms are known to kill lesser kestrels, although their impact is unknown.

Impact: Medium

C) Factors reducing juvenile survival and recruitment

Juvenile survival until the breeding age is a key demographic factor (as in many similar raptors). Adult survival is relatively high because the numbers of returning adults is constant across years, contrarily to juveniles.

8. **Rainfall in Sahel**

- Survival was strongly and positively correlated with annual rainfall in the Sahel wintering area. Sahel rainfalls appeared to affect only yearlings, adult survival being constant over time (Milhoub *et al.* 2010).

Impact: High

9. Pesticides use in Africa

- Many locust and grasshopper species are agricultural pests in the Sahel region (Skaf *et al.,* 1990). Pest control measures (i.e. wide aerial spray campaigns) are widely used and may represent a threat to migratory and resident bird species in sub-Saharan areas. Chemical pesticide sprayings narrowed Acrididae population abundance and range throughout Africa during the last decades (Duranton and Lecoq, 1990), and organochlorine contaminants may decrease both survival (Mineau, 2002) and fertility in birds (Bouwman *et al.*, 2008).

Impact: High

10. Habitat degradation along migration and stop-over sites

- The highly gregarious behaviour of the species makes it particularly vulnerable also during migration, when the presence of roosts and food in the stop-over sites is of great importance to reduce the stresses of travelling. Their conservation is therefore crucial.
- Loss of foraging habitat along migratory routes has been reported from across the species range [e.g. Israel Zev Labinger *pers. com.*, Egypt, Morocco, in Tunisia Sarà *pers. com*]. Juveniles, as less experienced hunters, are likely more susceptible to this threat.

Impact: High

D) Knowledge and information gaps that prevent effective conservation

11. Knowledge and protection of migration routes, stop-over sites (roosts) and wintering grounds and their associated threats

- Long-distance migrants like lesser kestrels are very susceptible to mortality during migration and the wintering. Apparently, most of the West European population winters in West Africa (Mauritania, Senegal, western Mali), where desertification is likely to increase in the next future and agricultural intensification is taking place in areas near large rivers (e.g. Senegal river). Moreover, most inland of Morocco,

Tunisia, Egypt and Israel is going to be changed through agricultural intensification. The routes to the wintering areas and the number and location of stop-over sites are practically unknown and are important to be discovered in order to be protected. Recent information published by Rodríguez *et al.* (2009) with result obtained trough geolocaters birds help to know more about it.

Impact: High

12. Current population size and trend and lack of coordinated monitoring

- No standardized monitoring method is used across the range.
- There is no operational international working group for the species now.

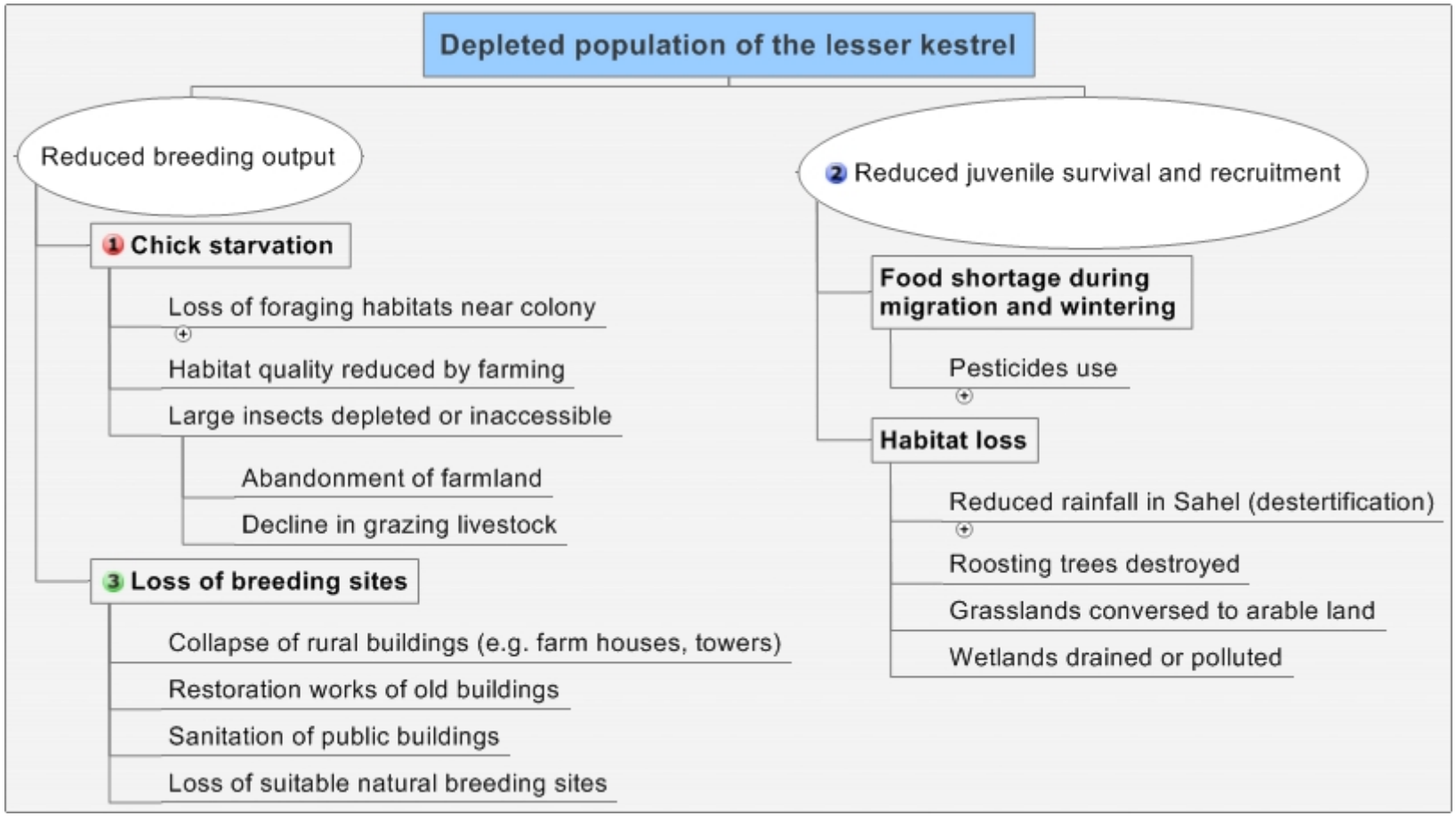
Impact: Medium

13. Knowledge on the effectiveness of conservation measures

- Some conservation measures, such as the agri-environmental may not be sufficiently attractive to farmers. This makes them ineffective at a large scale (Franco and Sutherland 2004). Lesser kestrels will probably benefit from the availability of basic biodiversity-friendly habits across the farmland landscape, which can be propagated through regulations.

Impact: Medium

Figure 1. Problem tree – prioritised threats to the European lesser kestrel population



(NB! the figure is simplified according to the available knowledge used for the threats analysis)

3 - POLICIES AND LEGISLATION RELEVANT FOR MANAGEMENT.

Relevant international policies

Global IUCN Red List (IUCN, 2010)

Category: **Vulnerable (VU)**

Criteria: A2bce+3bce+4bce

This species has undergone rapid declines in Western Europe, equivalent to c.46% in each decade since 1950, on its wintering grounds in South Africa, equivalent to c.25% in each decade since 1971, and possibly in parts of its Asian range. Recent data indicate that these rates of decline are probably reduced.

European Union Treat Status (BirdLife, 2004)

Category: Depleted

The species was stable or increased in south-western Europe during 1990–2000, but many south-eastern populations continued to decline, and the species underwent a small decline overall. Its total population size remains far below the level that preceded its decline, and consequently this globally threatened species is evaluated as Depleted in Europe.

SPEC (Species of European Conservation Concern) (BirdLife, 2004a)

Category: SPEC 1 (2004)

European species of global conservation concern.

EU Birds Directive - Council Directive on the conservation of wild birds (2009/147/EC)

Category: Annex I

Aim: to protect wild birds and their habitats, e.g. through the designation of Special Protection Areas (SPA). The directive requires that species listed in Annex I 'shall be subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution' and that 'Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies '.

Bern Convention - Convention on the Conservation of European Wildlife and Natural Habitats

Category: Appendix II

Aim: to maintain populations of wild flora and fauna with particular emphasis on endangered and vulnerable species, including migratory species. Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II.

Convention on the Conservation of Migratory Species of Wild Animals

Category: Appendix II

Aim: Appendix II refers to migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation organised by tailored agreements. The Convention encourages the Range States to conclude global or regional Agreements for the conservation and management of individual species or, more often, of a group of species listed in Appendix II.

Convention on Migratory Species Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia

Category: Category 1

Aim: To take co-ordinated measures to achieve and maintain the favourable conservation status of birds of prey throughout their range and to reverse their decline when and where appropriate. To this end, they will endeavour to take, within the limits of their jurisdiction and having regard to their international obligations, the measures specified in Paragraphs 7 and 8 of the MoU, together with the specific actions laid down in the Action Plan (Annex II of the MoU).

Category 1 species are those defined as Globally Threatened or Near Threatened by the IUCN Red List, and listed as such in the BirdLife International World Bird Database. The Memorandum encourages signatories to adopt, implement and enforce such legal, regulatory and administrative measures as may be appropriate to conserve these bird of prey and their habitats.

338/97 CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

Category: Appendix II

Appendix II shall include all species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival.

The species is affected by the European policies on agriculture. The CAP Pillar II measures related to sustainable land management (LFA payments, agro-environmental measures and support for diversification of economic activities in rural areas) could play a key role in addressing the threats affecting the species.

National policies and recent conservation actions

The lesser kestrel benefits from complete legal protection across Europe, as well as in Morocco, Tunisia and Turkey.

National action plans were officially adopted in France, while in Azerbaijan and Bulgaria such plans are produced by NGOs and are not officially adopted by the Governments.

Some conservation measures are ongoing in different countries in Europe (see Annex 3). Three LIFE projects targeting the species have been developed in Italy, Spain, France and Portugal. Projects to reinforce populations and restore buildings and improve the nesting conditions have been implemented in some countries, mainly in France and Spain.

In Castro Verde, Portugal the agri-environmental scheme in combination with the Natura 2000 designation contributed decisively to maintain the dry land farming system and habitat quality remained high. This type of measures will be now replicated to similar areas in Portugal (Catry *et al.,* 2009).

The protection of key sites has been implemented to different degrees in each of the countries (Annex 2). Of the countries holding significant populations (>50 pairs), the majority of the respective national populations are protected in Greece (95-96%), Italy (50-90%), Spain (50-90%), Portugal (91-92%) and France (50-90%). Some countries (e.g. France in 2006) have designated new SPAs during the last years, especially for the lesser kestrel but further work is required to include and maintain breeding/feeding areas as SPAs. The management of the SPAs is generally not in place. Outside of the EU, only 5-10% of the national population is protected in Azerbaijan, and only 0-10% is protected in Macedonia. Key breeding areas have been designated as Important Bird Areas (IBA) in Turkey, covering 50-90% of the national population but their protection and the protection of steppes and dry grassland habitats in Turkey is further needed.
Due to the lack of coordinated monitoring schemes in most of countries, the collection of recent data on site level about the population size included in SPAs was not possible.

4 - FRAMEWORK FOR ACTION

Goal

The goal of Action Plan is to improve the status of the lesser kestrel to a point which would allow it to be down listed to Least Concern on the IUCN Red List.

Objectives

Objective 1: Ensure positive population trend of the breeding populations of the species in the EU for the next 10 years.

Objective 2: Maintain the present and begin to restore the former breeding range by ensuring suitable habitat and reinforcing populations.

Results:

1) The average breeding success of the populations has improved.

2) Juvenile survival rate has increased; adult survival remained at least at current levels.

3) Threats and conservation needs outside of the breeding range are better understood and addressed.

4) Breeding range of the species has expanded and restored to former areas or at least maintained.

5) International coordination of conservation actions, monitoring and information sharing has improved.

Actions:

ACTION	PRIORITY	APPLIES TO:	RESPONSIBLE:
Result 1: The average breeding success of the populations has improved.			
1.1. Maintain good quality foraging habitats across the breeding range	**Essential**	**All range states**	
a) Reduce the use of pesticides (e.g. encourage organic cereals)	High	ES, PT, IT, TR, GR, BG, FR	Ministries of Agriculture and Environment
b) Limit the expansion of perennial crops (e.g. olives, vineyards) on steppes through impact assessment of irrigation and land conversion.	High	ES, PT, IT	Ministries of Agriculture and Environment
c) Maintain habitat diversity and traditional extensive farming practices (esp. through agri-environmental measures) including grasslands and fallow land in agri-mosaics	Essential	All breeding range states	Ministries of Agriculture and Environment
d) Preserve wetlands in agricultural areas	High	All breeding range states	Local environmental authorities
e) Encourage crop rotations that include fallow and alfalfa, artichoke, etc	High	FR, IT, GR, PT, BG	Agri-environment technicians and Ministries of Agriculture and Environment
f) Reduce the use of rotary mowers and encourage the use of motor mowers with cutter bar.	High	All breeding range states	Ministries of Agriculture and Environment

g) Preserve field margins and recreate where needed through agri-environment schemes	High	IT, FR, GR, BG	Agri-environment technicians
h) Identify and preserve roosting trees in foraging areas	High	All range states	Local environmental authorities, municipalities
i) Provide guidelines on best practices in conserving steppe birds to agriculture advisory services and agronomists	High	ES, PT, TR, GR, FR BG	DG Env., NGOs
j) Encourage livestock grazing at moderate densities, prevent overgrazing and shrubbing	High	GR, MK, TR, ES, PT, BG, FR	Local environmental authorities, municipalities
k) Preserve communal grazing areas and do not change their use	Medium	All range states	Local environmental authorities, municipalities
l) Implement strict EIA of irrigation and afforestation schemes, to prevent further loss of dry grasslands and steppe biodiversity.	Medium	ES, PT	Environmental authorities responsible for EIA
1.2. Conservation and management of breeding and roosting sites			
a) Identify and map existing colonies and roosting sites at suitable scale maps and GPS and ensure they are clearly marked as protected objects, including with information boards where suitable.	High	All range states	Researchers, NGOs and local environmental authorities
b) Ensure provisions for strict protection, maintenance and monitoring of the breeding colonies through the management plans for Natura 2000 sites	High	All breeding range states in the EU	Local environmental authorities, NGOs
c) Identify breeding sites at risk of destruction (e.g. pending restoration works)	High	All breeding range states	Local building regulation authorities, NGOs
d) Develop and promote local regulations for maintenance of buildings with	Medium	All breeding range	Local building

colonies, construction techniques and facilities.		states	regulation authorities, NGOs
e) Recreate artificial breeding sites (esp. respectful to local traditions) in historical buildings	Low	All breeding range states	Local building regulation authorities, NGOs
1.3. Improve conditions at breeding sites to reduce mortality of eggs and chicks			
a) Exclude predators by providing nest boxes with appropriate design.	Medium	All breeding range states	Local building regulation authorities, NGOs
b) Carry out rat and cat control measures in villages or buildings with significant breeding colonies.	Medium	All breeding range states	Local building regulation authorities, NGOs
c) Improve waste management in rural areas to prevent spread of predators.	Low	All breeding range states	Local building regulation authorities, NGOs
d) Improve awareness of rural population, especially youth and owners of buildings and technicians dealing with building maintenance.	Medium	All breeding range states	Local building regulation authorities, NGOs

RESULT 2: JUVENILE SURVIVAL RATE HAS INCREASED; ADULT SURVIVAL REMAINED AT LEAST AT CURRENT LEVELS			
2.1 Research on the species distribution and ecology in the non-breeding range			
a) Identify and protect roosting sites/trees.	High	All breeding and migratory range states	Researches, NGOs
b) Investigate the drivers of habitat degradation in the Sahel region and develop conservation measures	High	All wintering range states in the Sahel	Researches, NGOs
c) Identify regions and habitats important for the species in Africa and clarify their conservation status.	High	All breeding range states	Researches, NGOs
Result 3: Increased knowledge and actions in place to identify and address conservation needs and threats outside of the breeding range.			
3.1. Develop regional strategies for habitat conservation in the wintering range			
a) Promote research on alternative to pesticides in Africa	High	FR, W and S African countries	Researches, NGOs, development agencies
b) Promote agricultural practices and livelihoods that are suitable to the climate and environmental factors of the Sahel.	Medium	International Aid programmes	NGOs, development agencies
c) Prevent habitat degradation along migration and stop-over sites (e.g. maintain dry-grassland areas, extensive arable farms, wetlands)	High	Israel, Egypt, Morocco, Tunisia, Algeria	Governments

RESULT 4. RESTORATION OF THE FORMER BREEDING RANGE (AS FAR AS POSSIBLE)			
4.1. Feasibility study of regional restoration programmes and restocking	**Medium**		
a) Local habitat conservation and restoration measures at former and potential future breeding areas (quality and quantity of habitat)	Medium	Balkan countries	NGOs, local environmental authorities
b) Carry out release programmes in suitable areas.	Medium	Balkans, SE Europe, FR, PT	NGOs, local environmental authorities
Result 5. Improved international coordination of conservation actions, monitoring and sharing of knowledge (also applies to regions, e.g. within Spain)			
5.1. Establish an international monitoring scheme			
a) Improve coordination of monitoring and information exchange	High	All range states	NGOs, Governments
b) Develop and share standardized monitoring methods	High	All range states	NGOs, Governments
5.2. Establish International working group to monitor and support the implementation of this plan	High	All range states	NGOs, Governments
5.3. Undertake priority research			
c) Carry out surveys of population size and trends in Turkey, National figure for Spain, North Africa, esp. Algeria, European Russia, Azerbaijan and Kazakhstan, Balkans - complete picture is missing (e.g. Albania)	High for ES and TR; Medium for rest	ES, TR and respective countries	NGOs, Governments
d) Research on the effectiveness of conservation measures to be completed	Medium	ES, PT, FR, IT, GR	Researchers, NGOs
e) Studying the migration routes and stop-over sites (roosts) and their associated threats	Medium	All range states	Researchers, NGOs

5 - REFERENCES

Ananian V. 2009. On the distribution and ecology of the lesser kestrel *Falco naumanni* in Armenia. *Sandgrouse* 31: 44-54. Leicestershire & Rutland Wilflife Trust Anglian Water (AWand LRWT) 2009. *Rutland Ospreys. Project web-site.* URL: http://www.ospreys.org.uk/. [Consulted on March 18th 2010].

Atienza, J.C., E. Banda and M. Corroto. 2001. Estatus del Cernícalo Primilla (*Falco naumanni*) en España y medidas de conservación llevadas a cabo. In Garcés y Corroto (Eds.): Biología y Conservación del Cernícalo Primilla. Servicio de Publicaciones de la Comunidad de Madrid.

Biber J.-P. 1996. International Action Plan for the lesser kestrel (*Falco naumanni*). In: *Globally threatened birds in Europe: action plans* (eds. B. Heredia, L. Rose & M Painter) pp. 191-203. Strasbourg. BirdLife International.

BirdLife International .2007. Surveys reveal raptor 'super-roost'. Web article. http://www.birdlife.org/news/news/2007/04/raptor_super_roost.html

BirdLife International. 2010. Species factsheet: *Falco naumanni*. Downloaded from http://www.birdlife.org on 30/7/2010

Bonal, R., and J.M. Aparicio, 2008. Evidence of prey depletion around lesser kestrel *Falco naumanni* colonies and its short term negative consequences. *J. Avian Biol*. 39: 189_197.

Bouwman, H., A. Polder, B. Venter, and J.U. Skaare. 2008. Organochlorine contaminants in cormorant, darter, egret, and ibis eggs from South Africa. Chemosphere 71, 227–241.

Bustamante J. 1997. Predictive models for lesser kestrel *Falco naumanni* distribution, abundance and extinction in southern Spain. *Biological Conservation* 80: 153-160.

Bux M., G. G.and M. Gustin. 2008. Nest box provision for lesser kestrel *Falco naumanni* populations in the Apulia region of southern Italy. *Conservation Evidence* 5: 58-61.

Calabuig G., J. Ortego, J.M. Aparicio & P.J. Cordero, 2008. Public information in selection of nesting colony by lesser kestrels: which cues are used and when are they obtained?. *Animal Behaviour*, 75, 1611 e 1617

Calabuig G., J. Ortego, J.M. Aparicio & P.J. Cordero, 2010. Intercolony movements and prospecting behaviour in the colonial lesser kestrel. *Animal Behaviour*, 79, 811 e 817

Catry I., R. Alcazar, A. M. A. Francoand W. J. Sutherland. 2009. Identifying the effectiveness and constraints of conservation interventions: A case study of the endangered lesser kestrel. *Biological Conservation* 142: 2782- 2791.

Catry I., R. Alcazarand I. Henriques. 2007. The role of nest-site provisioning in increasing lesser kestrel *Falco naumanni* numbers in Castro Verde Special Protection Area, southern Portugal. *Conservation Evidence* 4: 54-57.

Cramp S.and K. E. L. Simmons 1987. *The Birds of the Western Palearctic. Volume II. Hawks to Bustards.*Oxford: Oxford University Press.

De Frutos Á., P. Olea, P. Mateo-Tomásand F. Purroy. 2009. The role of fallow in habitat use by the lesser kestrel during the post-fledging period: inferring potential conservation implications from the abolition of obligatory set-aside. *European Journal of Wildlife Research*, 56(4): 503-511.

Donázar J. A., J. J. Negro, F. Hiraldoand F. Hiraldo. 1993. Foraging Habitat Selection, Land-Use Changes and Population Decline in the lesser kestrel *Falco naumanni*. *Journal of Applied Ecology* 30: 515-522.

Duranton, J.F. and M. Lecoq. 1990. Ecology of locusts and grasshoppers (Orthoptera, Acrididae) in Sudanese West Africa. I. Discriminant factors and ecological requirements of acridian species. Acta Oecologica 1, 151–164.

European Nature Information System (EUNIS) 2010. *Falco naumanni*. European Topic Centre on Biological Diversity.

Forero M. G., J. L. Tella, J. A. Donázar and F. Hiraldo. 1996. Can interspecific competition and nest site availability explain the decrease of lesser kestrel *Falco naumanni* populations? *Biological Conservation* 78: 289-293.

Franco A. M. A., I. Catry, W. J. Sutherlandand J. M. Palmeirim. 2004. Do different habitat preference survey methods produce the same conservation recommendations for lesser kestrels? *Animal Conservation* 7: 291- 300.

Franco A. M. A., J. T. Marquesand W. J. Sutherland. 2005. Is nest-site availability limiting lesser kestrel populations? A multiple scale approach. *Ibis* 147: 657-666.

Franco A. M. A.and W. J. Sutherland. 2004. Modelling the foraging habitat selection of lesser kestrels: conservation implications of European Agricultural Policies. *Biological Conservation* 120: 63-74.

Galushin, V.M. 2008. III International Conference on Raptors of Ukraine, Krivoy Rog, 24-25 October.

García Fernández, J. and J. Sanz-Zuasti. 2006 El cernícalo primilla (*Falco naumanni*) en Castilla y León. Junta de Castilla y León.

Garcia J., M. B. Morales, J. Martinez, L. Iglesias, E. G. De La Morena, F. Suarezand J. Vinuela. 2006. Foraging activity and use of space by lesser kestrel *Falco naumanni* in relation to agrarian management in central Spain. *Bird Conservation International* 16: 83-95.

Green Balkans NGO (GB) 2009a. *Conservation activities for target species from the EC Birds Directive – lesser kestrel, Black vulture and Imperial eagle in their main habitats in Bulgaria. Project proposal*. Operational programme Environment 2007-2013. Ref no: BG161PO005/08/3.0/01/05. Ministry of Environment and Waters.

Groombridge, J.J., C.G. Jones, M.K. Bayes, A.J. van Zyl, J. Carrillo, R.A. Nichols, and M.W. Bruford. 2002. A molecular phylogeny of African kestrels with reference to divergence across the Indian Ocean. Molecular Phylogenetics and Evolution 25: 267–277

Hagemeijer W. J. M.and P. Iankov. 1997. lesser kestrel *Falco naumanni*. In: *EBCC Atlas of European breeding birds: their distribution and abundance* (eds. W. J. M. Hagemeijer & M. J. Blair). London, U.K.: T. and A.D. Poyser.

Henriques, I., R. Constantino and R. Alcazar. 2006. Monitorização das colónias de Peneireiro-das-torres, *Falco naumanni*, em Portugal – Relatório Final da Acção D2 do Projecto LIFE Peneireiro-das-torres (LIFE02/NAT/P/8481). LPN. Lisboa. Portugal. 216pp.

Hiraldo F., J. J. Negro, J. A. Donázar and P. Gaona. 1996. A Demographic Model for a Population of the Endangered lesser kestrel in Southern Spain. *Journal of Applied Ecology* 33: 1085-1093.

Iankov P., T. Petrov, T. Michev and L. Profirov. 1994. Past and present status of the lesser kestrel (*Falco naumanni*) in Bulgaria. In: *Raptor Conservation Today* (eds. B. Mayburg & R. D. Chancellor) pp. 133-137. WWGBP/Pica Press.

International Union for the Conservation of Nature and Natural Resources (IUCN) 1998. *Guidelines*

Kmetova E., P. Zhelev, A. Mechevand D. Demerdzhiev. in press. On the distribution of lesser kestrel (Falco naumani) in Turkish Thrace.

Liven-Schulman I., Y. Leshem, D. Alonand Y. Yom-Tov. 2004. Causes of population declines of the lesser kestrel *Falco naumanni* in Israel. *Ibis* 146: 145-152.

Mascara, R. and M. Sarà. 2006. Densità e biologia riproduttiva del grillaio *Falco naumanni* nella piana di Gela (Sicilia). *Avocetta,* 30: 51–59.

Mihoub, J.-B., O. Giménez, P. Pillard, and F. Sarrazin. 2010. Challenging conservation of migratory species: Sahelian rainfalls drive first-year survival of the vulnerable lesser kestrel *Falco naumanni*. *Biological Conservation*. 143: 839-847

Mineau, P., 2002. Estimating the probability of bird mortality from pesticide sprays on the basis of the field study record. *Environmental Toxicology and Chemistry* 21 (7): 1497–1506

Minias P, K. Kaczmarek, A. Piasecka and M. Kuncewicz. 2009. Large Roost of lesser kestrels in South-eastern Albania. *Journal of Raptor Research*. 43: 2 166-167

Negro J. J., F. Hiraldo and J. A. Donázar. 1997. Causes of Natal Dispersal in the lesser kestrel: Inbreeding Avoidance or Resource Competition? *Journal of Animal Ecology* 66: 640-648.

Negro J. J., J. A. Donázar and F. Hiraldo. 1993. Home range of lesser kestrel during the breeding season. In: *Biology and Conservation of Small Falcons* (eds. M.K. Nicholls & R. Clarke) pp. 144–150. Canterbury, UK. The Hawk and Owl Trust.

Olea, P.P., R. Vera, A. De Frutos and H. Robles. 2004. Premigratory communal roosts of the lesser kestrel in the boreal summer. *Journal of Raptor Research* 38 (3): 278-282

Ortego J., J.M. Aparicio, A. Munóz and R. Bonal. 2007. Malathion applied at standard rates reduces fledgling condition and adult male survival in a wild lesser kestrel population. *Animal Conservation* 10: 312-319

Ortego, J., J.M. Aparicio, G. Calabuig and P.J. Cordero, 2007. Increase of heterozygosity in a growing population of lesser kestrels. *Biol. Lett*. 3: 585–588.

Parr S. J., M. Á. Naveso and M. Yarar. 1997. Habitat and potential prey surrounding lesser kestrel *Falco naumanni* colonies in central Turkey. *Biological Conservation* 79: 309-312.

Parr S., P. Collin, S. Silk, J. Wilbraham, N. P. Williams and M. Yarar. 1995. A baseline survey of lesser kestrels *Falco naumanni* in central Turkey. *Biological Conservation* 72: 45-53.

Pillard P., G. Jarry and V. Lelong, 2009. *Suivi et conservation du dortoir de Faucons crécerellettes et d'Elanions naucler de la région de Kaolack (Sénégal).* In Actes du VII Congrès International sur le Faucon crécerellette. 2009. LPO Service Edition.

Pillard P., J.M. Thiollay and G. Rondeau, 2004. Données sur l'hivernage du Faucon crécerellette *Falco naumanni* en Afrique de l'ouest. *Alauda* 72(4): 323-328.

Pillard P., T. Corveler, H-P. Roche and C. Girard, 2005. Données sur l'hivernage du Faucon crécerellette *Falco naumanni* au Niger. *Alauda* 73(2): 137-140.

Prugnolle F., P. Pillard, L. Brun, G. Tavecchia. 2003. First-year and adult survival of the endangered lesser kestrel *Falco naumanni* in southern France. *Bird Study* 50: 68–72.

Rguibi Idrisi and Cherkaoui, 2008. *Status and distribution of lesser kestrel Falco naumanni breeding in Nortern Morocco*. In: Pillard, P. (ed.). Actas del VII Congreso Internacional sobre el Cernícalo Primilla. 2009. LPO Service editions.

Rocha, P. (2008) "*Falco naumanni*". In Equipa Atlas (eds.): Atlas das Aves Nidificantes em Portugal (1999-2005). Pp. 186-187. ICNB, SPEA, PNM, SRAM. Assírio & Alvim, Lisboa.

Rodríguez C., L. Tapia, F. Kieny and J. Bustamante. 2010. Temporal Changes in lesser kestrel (*Falco naumanni*) Diet During the Breeding Season in Southern Spain. *Journal of Raptor Research* 44(2):120-128. 2010 doi: 10.3356/JRR-09-34.1

Rodríguez C., K. Johstand J. Bustamante. 2006. How do crop types influence breeding success in lesser kestrels through prey quality and availability? A modelling approach. *Journal of Applied Ecology* 43: 587-597.

Rodríguez, C. and J. Bustamante 2003. The effect of weather on lesser kestrel breeding success: can climate change explain historical population declines?. *Journal of Animal Ecology* 72: 793-810

Rodríguez, C., J.J. Negro, J. Bustamante, J.M. Fox and V. Afanasyev. 2009. Geolocators map the wintering grounds of threatened lesser kestrel in Africa. *Diversity and Distributions* 15: 1010-1016.

Serrano D. and J. L. Tella. 2003. Dispersal within a Spatially Structured Population of lesser kestrels: The Role of Spatial Isolation and Conspecific Attraction. *Journal of Animal Ecology* 72: 400-410.

Serrano D., J. L. Tella, J. A. Donázar and M. Pomarol. 2003. Social and Individual Features Affecting Natal Dispersal in the Colonial lesser kestrel. *Ecology* 84: 3044-3054.

Serrano, D., M. G. Forero, J. A. Donázar, and J. L. Tella. 2004. The role of dispersal and conspecific cues on breeding site selection and colony dynamics of lesser kestrels. *Ecology* 85: 3438–3447.

Tella J. L. and M. G. Forero. 2000. Farmland habitat selection of wintering lesser kestrels in a Spanish pseudosteppe: implications for conservation strategies. *Biodiversity and Conservation* 9: 433-441.

Tella J. L., M. G. Forero, F. Hiraldo and J. A. Donázar. 1998. Conflicts between lesser kestrel Conservation and European Agricultural Policies as Identified by Habitat Use Analyses. *Conservation Biology* 12: 593-604.

Tella J.L, M. Carrete, J. Sánchez-Zapata, A, D. Serrano, A. Gavrilov, S. Sklyarenko, O. Ceballos, A. Donázar and F. Hiraldo. 2004. Effects of land use, nesting-site availability, and the presence of larger raptors on the abundance of Vulnerable lesser kestrels *Falco naumanni* in Kazakhstan. *Oryx* 38: 224-227.

ANNEX 1

List of threats and their ranking

(CR-critical, H-high, M-medium, L-low)

	Threats identified in the original action plan (Biber, 1996)							Newly identified threats in 2010			
For the 1996 assessment (priority indicated in brackets)	Habitat loss in breeding areas (CR)	Reduction in the availability of prey due to pesticide use (CR)	Habitat loss in winter quarters and stopover sites (unknown)	Loss of nest-sites (L/M)	Interspecific competition (L/M)	Pesticide toxicity (L)	Human persecution and disturbance (L)	Windfarms	Shooting	Electrocution power lines	Climate change
Armenia					L		L				
Azerbaijan	L	L		L		L	L				
Bosnia & Herzegovina	CR	CR	CR	L	L	L	H				
Bulgaria	H/ M	CR	H	L	M	M	L	H			
Croatia	H	M	H	M	M	L	M				
Cyprus			L				L				
France	M	M		H	M			L			H
Georgia	H	L	L	L	L	L	L				
Greece	H	H		H	L	M	M				
Italy	CR	CR	CR	M	M	M	M	H	M		M
Macedonia	M	M		H	L	M	L				
Portugal	CR	L		CR	M	L	L			M	M
Romania	H	CR			L	L	L				
Serbia	CR	H	L	M	M	M	M				
Slovakia											
Slovenia	H	CR		M	L	M	L				
Spain	CR	H		H	M	L	L	L	L	M	M
Turkey	H	H	M	M		L	L				
Ukraine	M	H				H	M				

ANNEX 2

Most important sites for the species and their protection status[1]

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Armenia	Gorayk	5,923	10	20	2006	breeding		-		5,923
Azerbaijan	Barda tugai forest	4,000	30	30	not stated	breeding		-		4,000
Azerbaijan	Mount Kargabazar and Mount Gush-gaya	3,000	5	10	not stated	breeding		-		3,000
Bulgaria	Studen Kladenets	15,992	3	5	1996	breeding	Studen Kladenets	BG0002013	15,977	15
Bulgaria	Dobrostan	83,609	3	11	1996	breeding	Dobrostan	BG0002073	83,581	28
France	Crau	40,100	136p	136p	1996	breeding	Crau	FR9310064	39,333	767
France	Marais entre Crau et Grand Rhône	5,600	Unknown	Unknown	-	-	Marais entre Crau et grand Rhône	FR9312001	7,234	-
France	Chaîne des Alpilles	21,783	Passage	Passage	-	-	Les Alpilles	FR9312013	27,006	-
France	Chaîne des Alpilles	21,783	1p	10p	-	-	Plaine de Villeveyrac / Montagnac	FR9112021	5,265	-
France	Montagne de la Clape	10,400	3p	6p	-	-	Montagne de la Clape	FR9110080	9,082	1,318
Georgia		82,828	Unknown	Unknown	-	-	Borjomi	-	17,948	14,480
Georgia			Unknown	Unknown	-	-	Borjomi-Kharagauli	-	50,400	

[1] Due to the lack of national monitoring schemes in most countries, and the monitoring methods used the collection of recent data on site level about the population size in SPAs was not possible.

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Gibraltar	Rock of Gibraltar	600	4	10	not stated	breeding	Rock of Gibraltar	UKGIB0001	201	399
Greece	Nestou delta and coastal lagoons	22,327	(blank)	(blank)	not stated	passage	Delta Nestou Kai Limnothalasses Keramotis Kai Nisos Thasopoula	GR1150001	13,844	8,483
Greece	Lake Chimaditis and Lake Zazaris	5,684	5	15	1996	breeding	Limnes Cheimaditida - Zazari	GR1340008	3,900	1,784
Greece	Mavrovouni mountain, Larissa	15,707	(blank)	(blank)	1995	passage	Oros Mavrovouni	GR1420006	15,228	479
Greece	Kalamas gorge	3,477	(blank)	(blank)	1996	breeding	Stena Parakalamou	GR2120007	3,129	348
Greece	Mesolongi and Aetoliko lagoons, and Acheloos and Evinos estuaries	46,861	12	15	1990	breeding	Delta Acheloou, Limnothalassa Mesolongiou - Aitolikou Kai Ekvoles Evinou, Nisoi Echinades, Nisos Petalas, Dytikos Arakynthos Kai Stena Kleisouras	GR2310015	38,125	8,736
Greece	Kotychi lagoon	2,954	6	10	not stated	breeding	Limnothalassa Kalogrias, Dasos Strofylias Kai Elos Lamias, Araxos	GR2320001	15	2,939
Greece			-	-	-	-	Limnothalassa Kotychi - Alyki Lechainon	GR2330009	2,226	-2,226
Greece	Mount Taigetos	79,831	3	10	1996	breeding	Oros Taygetos - Lagkada Trypis	GR2550009	47,913	31,918

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Greece	Dionisiades islands	552	(blank)	(blank)	not stated	passage	Dionysades Nisoi	GR4320011	365	187
Greece	Lakes Khortaro and Alyki, Moudros gulf, Diapori fen, and Fakos peninsula	13,239	220	220	1996	breeding	Ygrotopoi Chortarolimni Kai Alyki Limnou	GR4110006	1,278	11,961
Greece			-	-	-	-	Nisides Kai Vrachonisides Limnou: Nisos Sergitsi Kai Nisides Diavates, Kompio, Kastria, Tigani, Karkalas, Prasonisi	GR4110008	0	0
Greece	Fourni islands	4,586	18	20	1996	breeding	Nisos Fournoi Kai Nisides Thymaina, Alatsonisi, Thymainaki, Strongylo, Plaka, Makronisi, Mikros Kai Megalos Anthropofagos, Agios Minas	GR4120006	3,589	997
Greece	Mount Dikios, Cape Louros, Lake Psalidi, and Alyki	9,097	10	15	1996	breeding	Kos: Limni Psalidi - Alyki	GR4210027	388	8,709
Greece	North and east Kalimnos, Telendos, and Kalolimnos islands and islets	5,233	20	25	1995	breeding	Nisides Lerou: Piganousa, Megalo Glaronisi, Mikro Glaronisi, Leriko	GR4210018	16	4,861

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Greece			-	-	-	-	Nisides Kalymnou: Epano, Nera, Sari, Telendos	GR4210019	356	.
Greece	Reservoirs of former Lake Karla	6,191	(blank)	(blank)	1996	non-breeding	Oros Mavrovouni	GR1420006	305	5,886
Greece	Lake Pikrolimni	2,044	40	40	1997	non-breeding	Limni Pikrolimni - Xilokeratea	GR1230004	1,870	174
Greece	Mounts Tsamanta, Filiaton, Pharmakovouni, and Megali Rahi	19,788	(blank)	(blank)	1997	passage	Ori Tsamanta, Filiaton, Farmakovouni, Megali Rachi	GR2120009	18,991	797
Greece	South-west peninsula-petrified forest, Lesvos	28,822	5	10	1996	breeding	Paraktioi Ygrotopoi Kolpou Kallonis	GR4110007	88	1,455
Greece			-	-	-	-	Notiodytiki Chersonisos, Apolithomeno Dasos Lesvou	GR4110010	27,279	
Greece	Thessaly plain	95,628	2,342	2,342	1995	breeding	Periochi Thessalikou Kampou	GR1420011	92,208	3,420
Greece	Farsala area	4,930	100	100	1995	breeding	Periochi Farsalon	GR1420012	4,549	381
Greece	Tyrnavos area	9,480	95	95	1995	breeding	Periochi Tyrnavou	GR1420013	8,991	489
Greece	Lake Pamvotida (Ioanninon)	2,987	(blank)	(blank)	not stated	non-breeding	Limni Ioanninon	GR2130005	2,531	456
Greece	Ioannina city and neighbouring area	13,763	50	150	1996	breeding	Limni Ioanninon	GR2130005	135	13,628
Greece	North-eastern edge of Crete	6,734	(blank)	(blank)	not stated	passage	Voreioanatoliko Akro Kritis	GR4320006	3,338	3,396
Greece	Area of Anthofito	1,200	80	80	1996	breeding	Periochi Anthofytou	GR1230006		1,200
Greece	Elassona area	7,500	49	49	1995	breeding	Periochi Elassonas	GR1420014		7,500

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Greece	Galaxidi	2,000	100	120	1996	breeding	Evryteri Periochi Galaxeidiou	GR2450009		2,000
Greece	Mati of Tirnavos	500	(blank)	(blank)	1996	non-breeding	-	-		500
Italy	Sirente, Velino and Duchessa mountains	74,932	130	130	1996	passage	Riserva Naturale Montagne Della Duchessa	IT6020046	3,276	12,672
Italy			-	-	-	-	Sirente Velino	IT7110130	58,984	
Italy	Murge	143,210	2,285	2,285	2001	breeding	Murgia Alta	IT9120007	124,576	18,634
Italy	Gravine	42,436	855	855	2001	breeding	Area Delle Gravine	IT9130007	25,579	10,178
Italy			-	-	-	-	Gravine Di Matera	IT9220135	6,679	
Italy	Coast between Bosa and Alghero	29,329	7	11	1995	breeding	Costa E Entroterra Di Bosa, Suni E Montresta	ITB023037	8,219	21,110
Italy	Madonie	39,274	23	23	1994	breeding	Parco Delle Madonie	ITA020050	39,054	220
Italy	Costa Viola	29,472	30	30	1990	passage	Costa Viola	IT9350300	29,043	270
Italy			-	-	-	-	Monti Peloritani, Dorsale Curcuraci, Antennamare E Area Marina Dello Stretto Di Messina	ITA030042	159	
Italy	Biviere and Plain of Gela	41,202	108	130	2001	breeding	Torre Manfria, Biviere E Piana Di Gela	ITA050011	17,784	23,418
Italy	Sinis and Oristano wetlands	57,262	10	10	1995	breeding	Isola Mal Di Ventre	ITB030039	374	48,886
Italy			-	-	-	-	Stagno Di S'ena Arrubia	ITB034001	244	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Italy			-	-	-	-	Corru S'ittiri, Stagno Di S, Giovanni E Marceddi	ITB034004	1,480	
Italy			-	-	-	-	Stagno Di Pauli Majori	ITB034005	289	
Italy			-	-	-	-	Stagno Di Mistras	ITB034006	713	
Italy			-	-	-	-	Stagno Di Sale E' Porcus	ITB034007	480	
Italy			-	-	-	-	Stagno Di Cabras	ITB030036	4,796	
Italy	Rocca Busambra	100,000	47	47	1994	breeding	Rocca Busambra	ITA020008	6,243	93,757
Italy	Castelluzzo	7,500	20	32	1996	breeding	Castelluzzo	-		7,500
Italy	Oristano wetlands	22,595	10	10	1995	breeding	Stagno Di Cabras	ITB030036	4,796	13,592
Italy			-	-	-	-	Stagno Di Corru S'ittiri	ITB030032	2,610	
Italy			-	-	-	-	Stagno Di Mistras	ITB034006	680	
Italy			-	-	-	-	Stagno Di Pauli Maiori	ITB034005	287	
Italy			-	-	-	-	Stagno Di Sale 'E Porcus	ITB034007	330	
Italy			-	-	-	-	Stagno Di S'ena Arrubia E Territori Limitrofi	ITB030016	300	
Italy	Cape Otranto and Cape Santa Maria di Leuca coast	8,463	50	50	1996	passage	-	-		8,463
Italy	Sicani mountains	18,000	50	200	1996	breeding	-	-		18,000
Macedonia	Mariovo	65,529	120	150	2003	breeding	-	-		65,529
Macedonia	Ovce Pole	41,365	200	250	2003	breeding	-	-		41,365

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Macedonia	Pelagonia	137,189	750	850	2002	breeding	-	-		137,189
Macedonia	Preod-Gjugjance	12,189	30	50	2003	breeding	-	-		12,189
Macedonia	Raec	9,542	15	25	2003	breeding	-	-		9,542
Macedonia	Tikvesh Lake	25,506	70	100	2003	breeding	-	-		25,506
Macedonia	Vardar Valley	25,919	200	250	2003	breeding	-	-		25,919
Macedonia	River Crna gorge	40,000	15	20	1989	breeding	-	-		40,000
Macedonia	River Crna gorge	40,000	15	20	1989	breeding	-	-		40,000
Macedonia	Demir Kapia gorge	10,512	5	10	1989	breeding	-	-		10,512
Macedonia	Demir Kapia gorge	10,512	5	10	1989	breeding	-	-		10,512
Macedonia	Lake Dojran	2,376	20	40	2001	breeding	-	-		2,376
Macedonia	Bistrentsi fishponds	300	200	300	2001	passage	-	-		300
Macedonia	Tikvesh	20,000	230	300	2003	breeding	-	-		20,000
Portugal	River Guadiana	76,569	48	49	2001	breeding	Castro Verde	PTZPE0046	16	797
Portugal			-	-	-	-	Vale Do Guadiana	PTZPE0047	75,756	
Portugal	Castro Verde plains	83,572	186	187	2001	breeding	Castro Verde	PTZPE0046	81,740	1,721
Portugal			-	-	-	-	Vale Do Guadiana	PTZPE0047	111	
Portugal	Vila Fernando	7,486	7	7	2003	breeding	Veiros	PTZPE0052	1,863	565
Portugal			-	-	-	-	Vila Fernando	PTZPE0053	5,058	
Portugal	Cuba	5,049	20	20	2001	breeding	Cuba	PTZPE0057	3,930	1,119
Portugal	Évora plains	53,129	17	21	2002	breeding	Évora	PTZPE0055	14,456	38,673
Romania	Danube Delta	515,088	1	3	2006	breeding	Beştepe - Mahmudia	ROSPA0009	0	3,340
Romania			-	-	-	-	Delta Dunării şi Complexul Razim - Sinoie	ROSPA0031	505,292	
Romania			-	-	-	-	Lacul Beibugeac	ROSPA0052	0	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Romania			-	-	-	-	Lunca Mureşului inferior	ROSPA0069	46	
Romania			-	-	-	-	Lunca Siretului Mijlociu	ROSPA0072	2	
Romania			-	-	-	-	Măgura Odobeşti	ROSPA0075	6,408	
Slovenia	Krakovo forest and Šentjernej plain	11,790	-	-	-	-	Krakovski Gozd - Šentjernejsko Polje	SI5000012	5,819	5,971
Spain	Alcántara reservoir-Cuatro Lugares	122,012	150	150	1996	breeding	Monfragüe Y Las Dehesas Del Entorno	ES0000014	10,934	38,629
Spain			-	-	-	-	Riberos Del Almonte	ES0000356	702	
Spain			-	-	-	-	Llanos De Alcantara Y Brozas	ES0000369	51,200	
Spain			-	-	-	-	Embalse De Alcantara	ES0000415	7,641	
Spain			-	-	-	-	Embalse De Talavan	ES0000418	7,293	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Garrovillas	ES0000423	39	
Spain			-	-	-	-	Pinares De Garrovillas	ES0000426	545	
Spain			-	-	-	-	Canchos De Ramiro Y Ladronera	ES0000434	5,029	
Spain	Alcázar de San Juan-Quero endorreic lagoons	59,475	100	100	1996	breeding	Humedales De La Mancha	ES0000091	10,867	43,897
Spain			-	-	-	-	Area Esteparia De La Mancha Norte	ES0000170	4,711	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain	Brozas-Membrío	98,483	50	50	1992	breeding	Rio Tajo Internacional Y Riberos	ES0000368	1,601	54,320
Spain			-	-	-	-	Llanos De Alcantara Y Brozas	ES0000369	40,459	
Spain			-	-	-	-	Charca Arce De Abajo	ES0000411	11	
Spain			-	-	-	-	Embalse De Alcantara	ES0000415	1	
Spain			-	-	-	-	Embalse De Brozas	ES0000417	30	
Spain			-	-	-	-	Embalse De Vegas Altas	ES0000420	8	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Garrovillas	ES0000423	2	
Spain			-	-	-	-	Pinares De Garrovillas	ES0000426	2,026	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Brozas	ES0000429	25	
Spain	Belver de los Montes-Gallegos del Pan	44,478	50	60	1996	breeding	Lagunas De Villafáfila	ES0000004	32,549	-
Spain			-	-	-	-	Tierra Del Pan	ES0000209	14,213	
Spain	Talamanca-Camarma	53,584	74	78	1995	breeding	Estepas Cerealistas De Los Ríos Jarama Y Henares	ES0000139	32,955	18,132
Spain			-	-	-	-	Estepas Cerealistas De La Campiña	ES0000167	2,497	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain	Cortados del Jarama	24,844	38	47	1995	breeding	Cortados Y Cantiles De Los Ríos Jarama Y Manzanares	ES0000142	22,040	2,788
Spain			-	-	-	-	Carrizales Y Sotos Del Jarama Y Tajo	ES0000438	16	
Spain	Campo de Calatrava	102,115	269	300	1995	breeding	Campo De Calatrava	ES0000157	8,985	93,130
Spain	San Clemente-Villarrobledo	107,334	95	95	1995	breeding	San Clemente	ES0000390	9,327	98,007
Spain	Fuente de Cantos-Montemolín	50,580	100	100	1996	breeding	Colonias De Cernicalo Primilla De Fuente De Cantos	ES0000403	58	50,522
Spain	Alcudia valley and mountain range	228,269	100	100	1996	breeding	Sierra Morena	ES0000090	71,785	148,878
Spain			-	-	-	-	Sierras De Almadén-Chillón-Guadalmez	ES0000090	7,504	
Spain			-	-	-	-	Sierra De Moraleja Y Piedra Santa	ES0000371	9	
Spain			-	-	-	-	Embalse De La Serena	ES0000397	12	
Spain			-	-	-	-	Sierra De Cardeña Y Montoro	ES6130001	1	
Spain			-	-	-	-	Sierras De Andújar	ES6160006	80	
Spain	Oropesa plains	45,680	60	60	1992	breeding	Valle Del Tietar Y Embalses De Rosarito Y Navalcan	ES0000089	9,846	26,175
Spain			-	-	-	-	Llanuras De Oropesa, Lagartera Y Calera Y Chozas	ES0000168	9,659	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain	Pela mountain range-Orellana reservoir-Zorita	143,465	310	340	1996	breeding	Embalse De Orellana Y Sierra De Pela	ES0000068	41,912	64,773
Spain			-	-	-	-	Llanos De Zorita Y Embalse De Sierra Brava	ES0000333	17,148	
Spain			-	-	-	-	La Serena Y Sierras Periféricas	ES0000367	57	
Spain			-	-	-	-	Arrozales De Palazuelo Y Guadalperales	ES0000400	5,368	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Acedera	ES0000401	0	
Spain			-	-	-	-	Vegas Del Ruecas, Cubilar Y Moheda Alta	ES0000408	14,207	
Spain	Trujillo-Torrecillas de la Tiesa	106,443	250	250	1996	breeding	Monfragüe Y Las Dehesas Del Entorno	ES0000014	9	87,832
Spain			-	-	-	-	Llanos De Trujillo	ES0000332	7,745	
Spain			-	-	-	-	Riberos Del Almonte	ES0000356	4,168	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Trujillo	ES0000402	1	
Spain			-	-	-	-	Charca La Torre	ES0000412	3	
Spain			-	-	-	-	Magasca	ES0000425	6,685	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain	San Pedro mountain range	307,094	50	50	1996	breeding	Embalse De Cornalvo Y Sierra Bermeja	ES0000069	0	170,136
Spain			-	-	-	-	Sierra De San Pedro	ES0000070	114,808	
Spain			-	-	-	-	Llanos De Cáceres Y Sierra De Fuentes	ES0000071	6	
Spain			-	-	-	-	Rio Tajo Internacional Y Riberos	ES0000368	1,891	
Spain			-	-	-	-	Embalse De Horno-Tejero	ES0000396	264	
Spain			-	-	-	-	Nacimiento Del Rio Gevora	ES0000407	19,944	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De San Vicente De Alcantara	ES0000424	3	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Alburquerque	ES0000430	42	
Spain	Jerez de los Caballeros dehesas	167,589	100	100	1996	breeding	Sierra De Aracena Y Picos De Aroche	ES0000051	12	129,262
Spain			-	-	-	-	Dehesas De Jerez	ES4310004	38,315	
Spain	Azuaga-Llerena-Peraleda de Zaucejo	155,053	200	200	1996	breeding	Campiña Sur - Embalse De Arroyo Conejos	ES0000325	43,702	111,324
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Fuente De Cantos	ES0000403	1	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain			-	-	-	-	Colonias De Cernicalo Primilla De Llerena	ES0000405	8	
Spain			-	-	-	-	Alto Guadiato	ES6130017	18	
Spain	Monegrillo-Pina steppe area-Pina	46,299	40	40	1997	breeding	Estepas De Monegrillo Y Pina	ES0000180	24,183	22,115
Spain			-	-	-	-	La Retuerta Y Saladas De Sástago	ES0000181	1	
Spain	Los Monegros (South)	48,390	230	230	1996	breeding	Estepas De Monegrillo Y Pina	ES0000180	33	19,331
Spain			-	-	-	-	La Retuerta Y Saladas De Sástago	ES0000181	28,870	
Spain			-	-	-	-	Valcuerna, Serreta Negra Y Liberola	ES0000182	156	
Spain	Tarifa	5,284	500	500	1980	passage	Los Alcornocales	ES0000049	725	2,657
Spain			-	-	-	-	Estrecho	ES0000337	1,902	
Spain	Cabras, Aljibe and Montecoche mountain range	142,174	62	69	1994	breeding	Sierra De Grazalema	ES0000031	699	18,431
Spain			-	-	-	-	Los Alcornocales	ES0000049	123,044	
Spain	Tierra de Campos steppes	268,020	100	100	1996	breeding	Oteros-Campos	ES0000194	31,675	142,020
Spain			-	-	-	-	Penillanuras-Campos Sur	ES0000207	12,959	
Spain			-	-	-	-	Oteros-Cea	ES0000215	4,446	
Spain			-	-	-	-	La Nava-Campos Sur	ES0000216	11,116	
Spain			-	-	-	-	Penillanuras-Campos Norte	ES0000217	11,377	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain			-	-	-	-	La Nava-Campos Norte	ES4140036	54,427	
Spain	Ballobar-Candasnos	24,640	72	72	1997	breeding	El Basal, Las Menorcas Y Llanos De Cardiel	ES0000183	6,920	17,720
Spain	El Valle, Altaona and Escalona mountains	23,626	6	6	1996	breeding	Monte El Valle Y Sierras De Altahona Y Escalona	ES0000269	13,029	10,597
Spain			-	-	-	-	Sierra Escalona Y Dehesa De Campoamor	ES0000464	8,885	-8,885
Spain	Ecija-Osuna plain	62,860	306	306	1996	breeding	Complejo Endorreico La Lantejuela	ES6180002	897	26,248
Spain			-	-	-	-	Campiñas De Sevilla	ES6180017	35,715	
Spain	Ceuta	602	30	80	1995	passage	Calamocarro-Benzú	ES6310001	578	24
Spain	Mérida-Montijo reservoir	4,593	50	50	1996	breeding	Embalse De Montijo	ES0000328	175	4,418
Spain	Plain between Cáceres and Trujillo-Aldea del Cano	106,229	450	450	1996	breeding	Llanos De Cáceres Y Sierra De Fuentes	ES0000071	69,566	30,629
Spain			-	-	-	-	Riberos Del Almonte	ES0000356	1,859	
Spain			-	-	-	-	Embalse De Aldea Del Cano	ES0000416	3	
Spain			-	-	-	-	Colonias De Cernicalo Primilla De La Ciudad Monumental De Caceres	ES0000422	16	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Spain			-	-	-	-	Magasca	ES0000425	4,156	
Spain	Plasencia and San Bernabé mountain range	16,501	70	70	1997	breeding	Rio Y Pinares Del Tietar	ES0000427	116	16,385
Spain	Tierra de Campiñas steppes	188,981	100	100	1995	breeding	Tierra De Campiñas	ES0000204	129,188	46,495
Spain			-	-	-	-	Llanuras Del Guareña	ES0000208	16	
Spain			-	-	-	-	Campos De Alba	ES0000359	6,712	
Spain			-	-	-	-	La Nava-Rueda	ES0000362	6,454	
Spain	Villafáfila	32,734	374	374	1996	breeding	Lagunas De Villafáfila	ES0000004	32,359	324
Spain			-	-	-	-	Penillanuras-Campos Sur	ES0000207	51	
Spain	Carmona countryside	18,200	409	409	1996	breeding	-	-		18,200
Spain	Cinca river rice fields and steppe area	14,400	36	36	1996	breeding	-	-		14,400
Spain	Condado-Campiña	56,500	450	450	1996	breeding	-	-		56,500
Spain	Córdoba countryside	116,000	240	260	1996	breeding	-	-		116,000
Spain	Hinojosa del Duque-El Viso	30,000	60	60	1992	breeding	-	-		30,000
Spain	Jaén countryside	35,500	100	150	1996	breeding	-	-		35,500
Spain	Puebla de Don Fadrique-Las Cañadas	52,140	70	80	1996	breeding	-	-		52,140
Turkey	North-east Turkey	1,230,000	-	-	-	-	Hatila Vadisi	-	17,104	1,101,628
Turkey			-	-	-	-	Kaç Kar Daglari	-	51,550	
Turkey			-	-	-	-	Kackar	-	4,143	
Turkey			-	-	-	-	Savsat Balikli	-	3,492	
Turkey			-	-	-	-	Uzungöl	-	1,625	

Country	Site name (IBA name)	IBA area (ha)	Pop. min	Pop. max	Year	Season	Protected area name (SPA name)	SPA code	Overlap with protected area (SPA) (ha)	Area of IBA non-protected (ha)
Turkey			-	-	-	-	Vercenik	-	50,458	
Turkey	Sarikamiş forest	61,650	-	-	-	-	-	-		61,650
Turkey	Sariyar reservoir	31,700	-	-	-	-	Nallihan Kuscenneti	-	425	31,275
Turkey	Seyfe lake	46,340	59	59	1996	unknown	Seyfe Gö Lü	-	10,700	32,340
Turkey			-	-	-	-	Seyfe Golu	-	14,000	
Turkey			-	-	-	-	Seyfe Gölü	-	10,700	
Turkey	Sündiken mountain	212,500	-	-	-	-	-	-		212,500
Turkey	Tahtalı mountains	131,800	-	-	-	-	-	-		131,800
Turkey	Türkmenbaba Dagi	53,940	-	-	-	-	Turkmenbaba Dagý	-	5,000	48,940
Turkey	Tuz lake	533,000	100	100	1998	breeding	Tuz Golu	-	190,000	343,000
Ukraine	Ukrainian Steppe Nature Reserve	1,134	2	10	1994	breeding	Ukrainian Steppe	-	1,134	0
Ukraine	Tarkhankuts'kyj peninsula	4,200	2	2	1996	breeding	-	-		4,200
Ukraine	Uzunlars'ke lake	9,600	4	4	1996	breeding	-	-		9,600

ANNEX 3

General conservation measures

Country	National Action Plan	National Working Group	National Monitoring Programme	Monitoring programme in protected areas	Routines for Informing Responsible Authorities of Nesting Areas/Sites
Armenia	No	Yes	No	No	No
Azerbaijan	Yes	No	Yes	No	No
Bosnia & Herzegovina	No	No	No	No	No
Bulgaria	Yes	Yes	No	No	No
Croatia	No	Yes	No	No	No
Cyprus	No	No	Yes	Yes	No
France	Yes	Yes	Yes	Yes	No
Georgia	No	No	No	No	No
Greece	No	No	No	No	No
Hungary	No	No	No	No	No
Italy	No	No	No	Yes	No
Macedonia FYR	No	No	No	No	No
Montenegro	No	No	No	No	No
Portugal	No	No	No	No	No
Romania	No	No	No	No	No
Serbia	No	No	No	No	No
Slovakia	No	No	No	No	No
Slovenia	No	No	No	No	No
Spain	No	No	No	No	No
Turkey	No	No	No	No	No
Ukraine	No	No	No	No	No

Conservation Protection

Country	Listing in National Red Data Book	Legal Protection from Killing
Armenia		Protection from killing, nest destruction and disturbance
Azerbaijan		Protection covers nest destruction
Bosnia and Herzegovina		Protected from killing; Protection covers nest destruction
Bulgaria		Protection from killing, nest destruction and disturbance
Croatia		Protection from killing, nest destruction and disturbance
Cyprus		Protection from killing, nest destruction and disturbance
France	Yes, Vulnerable	Protection from killing, nest destruction and disturbance
Macedonia		Protection from killing, nest destruction and disturbance
Georgia		Protected from killing
Greece		Protection from killing, nest destruction and disturbance
Italy		Protection from killing, nest destruction and disturbance
Montenegro		Protection from killing, nest destruction and disturbance
Poland		Protection from killing, nest destruction and disturbance
Portugal	Yes, Vulnerable	Protection from killing, nest destruction and disturbance
Romania		Protection from killing, nest destruction and disturbance
Serbia		Protection from killing, nest destruction and disturbance
Slovakia		Protection from killing, nest destruction and disturbance
Slovenia		Protection from killing, nest destruction and disturbance
Spain	Yes, Vulnerable	Protection from killing (nest destruction and disturbance included)
Turkey		Protected from killing nest destruction and disturbance
Ukraine		Protected from killing and disturbance

Overview of the coverage of the species in networks of sites with legal protection status
(information about the breeding population only)

Country	% population in IBAs	% population in SPAs	% pop, in other national protected areas
Armenia	100%	0-10%	0-10%
Azerbaijan	5 - 10%	5 - 10%	
Bosnia and Herzegovina	0-10%	0-10%	50-90%
Bulgaria	90-100%	90-100%	10-50%
Croatia	10-50%	10-50%	10-50%
Cyprus	75 - 90%	8 - 15%	10 - 15%
France	50-90%	90-100%	50-90%
Macedonia	50-90%	0	0-10%
Georgia	90 - 100%		80 - 100%
Greece	95 - 96	95 - 96%	0
Italy	10-50%	50-90%	70 - 80%
Montenegro	0		
Portugal	91 - 92%	91 - 92%	6%
Romania	90-100%	90-100%	90-100%
Serbia	0-10%	0-10%	0-10%
Slovenia	100%	100%	50 - 70%
Spain	50-90%	10-50%	0-10%
Turkey	50-90%		
Ukraine	0-10%	0-10%	0-10%

Conservation measures in the past ten years in countries covered by this plan

Country	Conservation Action in Last Ten Years
Armenia	• The only breeding site of LK designated as an Important Bird Area with 7 breeding pairs which has been monitored and protected • Caucasus Regional Species Action Plan for lesser kestrel was developed in 2008 • Numerous public awareness and education activities have been carried out.
Azerbaijan	• National survey was conducted in 2007-2009, more 60 breeding colonies were registered and an article in Russian was published.
Bulgaria	• LK favourable pasture management regimes have been introduced at former LK breeding / foraging areas. Agri-environment schemes are at an initial stage at present and do not consider the LK. SPAs, including all former breeding sites of the LK have been designated • LK Reintroduction programme at initial stage, including a feasibility study and awareness campaign.
Croatia	• Until recently considered to be extinct but several pairs discovered in 2010.
Cyprus	• Designation by the Cyprus Government of many new sites as SPAs of which three (Paralimni Salt Lake, Gavo Greco and Akamas peninsula) are passage points for migratory lesser kestrels. • Designation by the British Sovereign Bases authorities of Akrotiri peninsula and Episkopi cliffs to Avdimou bay as an equivalent of SPA (2010). These areas are where the majority of the migratory population (95%) of lesser kestrels overflies.
France	• First National Action Plan: 2002-2009 • Second National Action Plan: 2010-2014 • Declaration new SPA in Herault • Increasing availability of breeding sites in Crau • LIFE-Nature project (2005-2009) for reintroduction in Aude • Studying population dynamics (through capture-recapture program) since 1994 • Studying roosting places during august and September in South of France • Identifying and promoting agricultural practices (through agri-environmental measures) for lesser kestrel • Analysing contaminants in lesser kestrel (eggs and adults) • Monitoring and conservation in sub-Saharan areas
Macedonia FYR	• A mapping survey was carried out in 2002-2003 and some nest boxes were installed. • Printed materials were produced.
Gibraltar	• A management plan is being developed to breed in captivity for release • Publicity campaign being planned in connection with the captive breeding and release programme
Greece	• Nest boxes have been provided is several SPA's with success by several small budget projects run by HOS, Universities, Hunting Associations etc. • New SPAs have been designated for the species and the now the species breed in 3 new

	SPAs. The breeding population in SPA "*Periochi Thessalikou Kampou*" was in 2009: 2296 pairs. The SPAs cover 90% of *Falco naumanni* population in Greece
Italy	• LIFE Nature Project «Rapaci lucani» (2005-2009) helped adjustment of the building codes of the municipalities of Matera and Montescaglioso, in order to protect and increase lesser kestrel breeding sites; - the installation of artificial nests, integrated with the historical buildings. 2.000 artificial nests were designed and produced; - the creation of a breeding and recovery centre for lesser kestrel - the development of a strong and lasting awareness campaign. • To promote scientific knowledge and record population data in Sicily the following actions have been carried out: year 2004-2009: Monitoring of lesser kestrel population in Sicily by small ordinary grants of Palermo university: "*Gestione della Biodiversità e degli habitat d'interesse comunitario (SIC a ZPS)*" year 2008-2009: Participation and editing of the 'Management plan of the SIC/ZPS ITA050001- ITA050011 – ITA050012' where the largest population of Sicily lives. • Research and Publications
Portugal	• The agri-environmental scheme for the main SPA Castro Verde continued (since 1995) and has slightly improved in 2007 but still needs amendments; No other agri-environmental scheme was initiated in other areas where the species breeds. (it is supposed to start next year as far as we know now) . • New areas were classified has SPA in 2008 (four new areas where the breeding of the species occurs). Main SPA was increased in 2008 (due to a compensation measure from a highway construction) but did not include all the colonies in the area; • LIFE Nature project towards lesser kestrel conservation implemented by LPN in 3 SPA, from 2002 to 2006, contributed for a significant increase in the availability of breeding sites • LIFE Nature project by LPN ongoing since 2009 includes some actions for lesser kestrel (www.lifeesteparias.lpn.pt). • Regional Structural Funds applied in a LPN project that started in the end of 2010 for the re-introduction in one city (Évora) where the species existed some decades ago. • Conservation actions on-going on the main Portuguese colony due to compensation measures associated with a highway construction (agreement between ICNB and BRISA - consolidation of breeding structures, agreements with farmers for hunting habitat, vigilance and monitoring) • ICNB, Electric companies and NGO's are acting together in minimising the impact of dangerous power lines. Several poles with reported electrocuted lesser kestrel were corrected in the last 5 years. The design of new power lines inside SPAs has low-electrocution risk.
Romania	• the species has not been confirmed as breeding in Romania since 2000-2002, when a small number of pairs has been described as breeding in the eastern part of the Danube Delta - the species is fully legally protected, however given the status of species in Romania (no confirmed breeding since 2004 and very scarce/occasional presence in the south-eastern part of the country) there are no direct measures in place targeting its conservation. • Suitable habitats have been included in SPAs.
Slovenia	• Two areas were designated as IBA and SPA for LK (Ljubljansko barje - species last bred

	in 1994, Krakovo forest and Sentjernej plain - species was last observed on Spring migration in the beginning of 21st century, no breeding confirmed since then).
Spain	• Declaration SPAs in Extremadura (2004) especially for *Falco naumanni*. • Studying roosting places in Extremadura. • Several restocking projects according IUCN guidelines. • Published Regional Species Action Plan (e.g. Aragón and Castilla La Mancha). • Numerous conservation and research projects at local and regional level took place.
Turkey	• Key breeding areas were designated as Important Bird Areas (IBA). • Several surveys carried out to determine the status of the lesser kestrel and identify key areas but no long term monitoring scheme. • Local surveys on people's awareness were carried out.